The Milroy Lectures

ON

THE NATURAL HISTORY OF VACCINIA.

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LECTURE II.[1]

Delivered on May 5th.

MORPHOLOGY AND CHEMISTRY OF VACCINE LYMPH.

MR. PRESIDENT, CENSORS, AND GENTLEMEN,—Fresh vaccine lymph, taken before full maturity of the vesicle, is a clear, transparent, limpid fluid, almost colourless in man and slightly straw-coloured when obtained from the calf; this difference in colour depends on the varying quality of the normal pigment present in the blood plasma. Calf vaccine lymph is also somewhat more viscid than human lymph and does not flow so readily when the vesicle is punctured; for which reason it is necessary to use compression forceps in the ordinary methods of collection of calf lymph. Examined microscopically vaccine lymph contains a certain amount of epithelial débris, a few cells and portions of cells being always visible. Leucocytes are usually present also, the number depending on the stage at which the lymph is taken; few or even none are to be found in the contents of the vesicle when first formed, but at or after the period of maturation they may be so numerous as to render the lymph turbid or even puriform. A few red blood corpuscles may be noticeable, although most observers will hardly agree with the statement made by Dr. W. Husband to the Royal Commission on Vaccination that this is invariably the case. In stained specimens, particularly, microorganisms of one or more varieties can readily be demonstrated, the actual numbers being dependent to a certain extent on the care with which the lymph has been collected. The nature and significance of the various microbes which at one time or another have been isolated from specimens of vaccine lymph will be discussed in the section on bacteriology.

It is matter of common knowledge that untreated lymph when stored in capillary tubes tends after a longer or shorter interval to become cloudy, under which circumstances it is also liable to be uncertain in its action if subsequently used for the operation of vaccination. This opaque appearance may be quite independent of any coagulation of the lymph, as may not unfrequently be demonstrated on breaking tubes in which it is most marked. On the other hand, where clotting has taken place after the lymph has been stored, the opacity tends to form with the coagulum a central whitish thread in the midst of a clear fluid, instead of being distributed through the lymph in discrete points as may otherwise be the case. If cultivation experiments be carried out by inoculation on nutrient media the number of colonies resulting from such inoculation with the contents of tubes which have become opaque is usually much greater than if fresh lymph is employed in a similar manner. We are apparently justified, therefore, in considering that the opacity of such old stored lymph is, in the main, the outcome of an enormous multiplication of aerobic bacteria the ancestors of which are present in the lymph when first collected, although their numbers are then so comparatively small as not to render it in any way turbid. It follows that ordinary vaccine lymph which has become opaque should never be employed for vaccination. Vaccination lymph, chemically speaking, consists of the serum or rather of the plasma of the blood. When freshly obtained, therefore, it is faintly alkaline in reaction, but it tends to become distinctly acid after a time when stored. In addition to the various salts and proteids normally present in the blood plasma vaccine lymph contains some substance, possibly of the nature of a toxin or ptomaine, which results from the vital activity of the specific organism peculiar to vaccinia. That this is so may be proved either by filtration of the lymph through porcelain or by exposure of it to a temperature of about 50° C. If, as I have shown, such filtered or sterilised lymph be inoculated on the skin in the usual manner no obvious effect is produced at the point of inoculation, but it will be found that the animal has been rendered temporarily immune to the effects of subsequent vaccination with lymph of normal potency.

BACTERIOLOGY.

Although the study of the bacteriology of vaccinia and variola has, during the past thirty years or so, attracted the attention of a great number of observers, much yet requires elucidation before we can look upon our knowledge in this direction as satisfactory. Nevertheless progress though slow is perhaps sure, and it would seem as if it must be the very difficulties of the subject which enhance the inducement for the constantly renewed initiation of investigations by observers in all parts of the world. As long ago as the year 1809 Sacco placed on record the fact that in vaccine lymph there might be found certain granules generally collected together into masses and possessed of the power of automatic movement. The observation appears to have stood alone for more than half a century, but in 1863 Dr. Lionel Beale gave an impetus to the investigation of the morphological constituents of vaccine lymph by his description of the existence in it of transparent or hyaline particles of extreme minuteness. Both in his original paper in the *Microscopical Journal* for April, 1864, and also subsequently in the Report of the Royal Commission on the Cattle Plague, Dr. Beale expressed the opinion that these granules constituted the contagious principle of the disease, but he does not appear to have obtained experimentally any facts in support of his belief. A few years later Hallier and Zurn (1867) and Keber (1868) called attention to the presence in vaccine lymph of numerous micrococci, or "grains" as they were termed by the latter observer, who also evidently regarded the bodies found by him as the carriers if not the actual generators of the virulent principle.

It is, however, to M. Chauveau (1868) and Professor Burdon Sanderson that we owe the first real step toward the elucidation of the micro-pathology of vaccinia, these observers having demonstrated that vaccine lymph when freed from its contained particles and inoculated on a living animal no longer causes vaccinia, while, on the other hand, the precipitate or deposit, separated from it in one way or another, when employed in similar fashion remains capable of producing the disease. M. Chauveau found that vaccine lymph taken at the stage of maturation of the vesicles contained minute granular bodies to which he gave the name of *corpuscles noirs*, and not unfrequently also much larger bodies resembling the leucocytes of pus. He further found that if the lymph was diluted ten times and allowed to stand these leucocytes when present gradually subsided to the bottom of the containing vessel and could then be removed. When this was done and the material employed for an experimental vaccination a local result was still obtained, thus showing that the active principle was contained not in these leucocytes but either in the granules or in the fluid portion of the lymph. In order to settle this point M. Chauveau devised a method of diffusion by which he was eventually able to separate the granules from the fluid portion of the lymph. The amount of vaccine lymph at his disposal being necessarily exceedingly small the ordinary means for obtaining diffusion were not applicable. M. Chauveau attained the desired object, however, by carefully floating a layer of distilled water on to the surface of a drop of lymph contained in a tiny glass vessel of cylindrical shape. If this manipulation is dexterously performed the two liquids do not mix with each other excepting in the immediate neighbourhood of the point of junction (of the two layers). But after a time the soluble constituents of the vaccine lymph pass upwards into the water, so that if after 24 hours or so a portion of the upper layer be carefully removed by means of a capillary tube and examined under the microscope it is found to be free from "granules." And, further, M. Chauveau was enabled to demonstrate the fact that while this upper layer of fluid which could be shown to contain albumin and so afforded evidence of diffusion having taken place, gave negative results only on inoculation, the lower layer, on the

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contrary, which contained the "granules" in suspension, was found to be active as vaccine, normal vesicles being obtained as the result of its inoculation. Professor Burdon Sanderson shortly afterwards repeated M. Chauveau's work, employing certain improvements in the method which seemed likely to render it more accurate and thus to afford results of greater scientific value. He also made use of another method of his own consisting in the filtration under pressure of the liquid to be tested through a layer of unglazed porcelain, by which means all solid particles were effectually separated from the fluid containing them. Professor Sanderson, by the employment of this method and also of his modification of that originally introduced by M. Chauveau, fully confirmed the results announced by the French investigator. Further, M. Chauveau, by largely diluting vaccine lymph with distilled water and employing the mixture for vaccination, found that he thus obtained strong additional evidence in support of the doctrine now universally accepted that contagium is particulate in nature. He was enabled to show that whatever the degree of dilution the local effect produced (provided that it is produced at all) is always the same. In other words, the difference between the effect of inoculating extremely diluted lymph and that of inoculating the lymph itself without any addition of water does not manifest itself, as might be expected, in the size of the individual vesicle or vesicles produced. He found, on the other hand, that the difference consisted entirely in the numerical relation of successes to failures. If successful, inoculation with a liquid containing an extremely small proportion of lymph may communicate the disease as completely as the original lymph itself—a result which is not only perfectly consistent with the fact that contagium is particulate, but which is in itself a necessary consequence of its being so. As bearing on this question it may be mentioned that Schultz of Berlin has quite recently been engaged in an investigation having for its object the determination of the extent to which, in order to save time and expense, glycerinated vaccine lymph could be diluted without losing its efficiency as vaccine. In the course of his experiments he found that an emulsion containing one part only of vaccine pulp in 2000 parts of glycerine and water was capable of producing locally a normal vesicle in a small proportion of the cases in which it was employed for vaccination. The experiments of Reiter confirmed those of M. Chauveau and showed that vaccine lymph even when excessively diluted was capable of affording a positive result on vaccination, provided the more extensive the dilution the greater the absorbing surface. In 1872 a paper was published by Cohn of Breslau in which he treated the morphological aspects of the subject with much completeness. His observations, which related to both vaccine lymph and variolous lymph, have received general corroboration from all subsequent workers. He, however, apparently believed certain micro-organisms found by him to be of one species only, to which accordingly he gave the name micrococcus vaccinæ or variolæ as the case might be, whereas later observers have shown that organisms of more than one species are usually to be found in any given specimen of crude lymph. Cohn called attention to the fact that in perfectly fresh vaccine lymph the "corpuscles" for the most part occur singly, but that others are joined together in pairs in a form resembling the figure 8; and he states that after the lymph has been kept for a time the number of the "double cells increases and soon chains of four begin to be distinguishable. These chains are usually curved or in zigzags; their attachment one to another is evidently very slight as they can readily be displaced. After a few hours' observation they are seen to be all aggregated into irregular colonies or clumps, each consisting of sixteen, thirty-two, or more corpuscles." He also noted a point of importance in connexion with the opacity which is apt to occur in stored lymph—namely, that "in capillary glass tubes the enlargement of colonies sometimes lasts a long time so that groups of them acquire considerable size and present themselves as flocculi."

Klebs (1873) isolated from vaccine lymph micrococci united together in the form of tetrads which he considered as specific and to which he gave the name of tetracoccus vaccinæ. Cornil and Babes (1883) also met with micrococci. Koch (1882) found micrococci in the vaccine vesicles of a child and noted that human lymph freshly prepared with glycerine contained what he appears to have regarded as the specific bacteria of vaccine. These developed but slowly even in the incubator and were met with in fewer numbers in old lymph, even though it still remained active. Quist in the following year (1883) published a series of experiments dealing with the possibility of cultivating outside the animal body the micro-organisms present in vaccine lymph. The culture fluid employed by him was composed of equal parts of blood-serum, glycerine, and distilled water, this mixture being rendered alkaline by the addition of $\frac{1}{100}$ part of carbonate of potash. After sterilising this fluid by exposing it to a temperature of 60° C. for one and a half hours on three successive occasions it was inoculated with a minute piece of sterilised sponge soaked in clear lymph or with a piece of vaccine "crust" which had been washed in distilled water and then carefully dried. He found that growth eventually occurred both on and below the surface, the former consisting of minute scales while the latter gradually settled to the bottom of the vessel as a fine sediment. The scales, forming a scum on the surface of the fluid, he found to be composed of swarms of micrococci which, when inoculated on the skin of calves, in some cases gave rise, in his opinion, to a typical eruption of vaccinia. Although Quist did not attain any great measure of success in the immediate object of his inquiry (the identification of the vaccine organism), still he showed that the specific contagium of vaccinia could exist for a time at any rate in a fluid containing a considerable portion of glycerine.

About this same time papers were published by Feiler (1883), Serebriakoff (1884) Baragi (1884), and Hubert (1884), all of whom denied that vaccine lymph contained any specific microbe whatever. Voigt isolated three species of bacteria by making gelatin plate cultures of vaccine lymph. Of these one, which alone was constantly to be found, he considered to be specific and consequently termed it the vaccinococcus. He describes this as a small coccus growing usually in groups of two or four, sometimes in masses and less often in chains. These bacteria gave rise to glistening white circular colonies which did not liquefy the gelatin in which they were grown. He further stated that cultivations of this bacterium when inoculated on calves rendered them immune to subsequent vaccination. Guttman (1886) also found three micrococci in the contents of vaccine vesicles. These were the micrococcus pyogenes aureus, micrococcus pyogenes albus, and micrococcus viridis flavescens, but none of these is specific to vaccinia. Marotta (1886) found a coccus (micrococcus tetragonus) which he regarded as specific. By its use he thought that he had succeeded in producing vaccine vesicles. From the characters which he assigns to his cultivations it would appear that in reality what he isolated was the staphylococcus pyogenes aureus. In 1886, Meguin called attention to the fact that the number of micrococci contained in vaccine lymph increased considerably from the second day onwards after the removal of the lymph. During the same year (1886) Dr. Buist succeeded in isolating from vaccine lymph three varieties of micrococci which when grown on nutrient media gave rise to colonies of a white, yellow, or orange colour respectively. All these Buist appears to have considered to be essential constituents of vaccine lymph, as is evidenced by the fact that he speaks of them as white, yellow, or orange vaccine respectively. From specimens of variolous lymph he succeeded in obtaining one organism only, the colour of which was white when grown on solid media. With none of these cultures did he obtain any definite result on the inoculation of calves, monkeys, or human beings.

A certain small measure of success appears to have attended inoculation experiments in the hands of Carmichael (1887), who does not, however, give any detailed description of the morphological characteristics of the growths which he obtained, which, by the way, although differing from one another in colour, he seems to have considered to be the product of one species of micrococcus only. As was doubtless the case with Quist's experiments, in the few instances in which true vaccine vesicles resulted at the site of his inoculations, success was in all probability due to the presence in the material employed of a small proportion of the lymph originally used for the seeding of his culture medium. Tenholt (1887) appears to have isolated from specimens of vaccine lymph a dozen different micrococci, two bacilli, and two yeasts. Hlava (1887), on the other hand, isolated from vaccine vesicles the streptococcus pyogenes, the staphylococcus pyogenes, the staphylococcus pyogenes albus, the staphylococcus cereus albus, and the micrococcus viridis flavescens. Garré (1887) reported the existence in vaccine

lymph of two bacilli and of a small coccus which he considered to be specific; this, when inoculated on the calf, produced the vaccinal eruption followed by immunity, while in the human being it afforded immunity although giving rise to no eruption. Pfeiffer, a year later (1887), recorded the existence in vaccine lymph of micro-organisms of several different forms, including a yeast (named by him saccharomyces vaccinæ) two sarcinæ (lutea and aurantiaca), a short bacillus allied to proteus vulgaris but differing from it in not being pathogenic, and certain micrococci of which one, the staphylococcus cereus albus (Passet) was of constant occurrence, while the staphylococcus pyogenes aureus and albus were less frequently met with. Pfeiffer, however, believes that the specific agent of variola and vaccinia is not to be sought for among the bacteria but rather that it belongs to the class of sporozoa. This subject will require further notice later. In addition to the staphylococcus aureus and albus M. Grigorieu (1889) describes a micrococcus vaccinæ as specific to the disease. This microbe usually developes as a diplococcus, rarely forming chains, and grows slowly on gelatin which it liquefies after from four to six weeks. On the calf it produced a papular eruption which apparently afforded immunity to subsequent vaccination. M. Woitow (1890) succeeded in isolating four staphylococci—aureus, albus, cereus, and citreus. He affirms that the inoculation of a mixture of these microbes produced typical vaccinia in the calf. Professor Leoni (1890) met with several pyogenic microbes in fresh vaccine lymph, notably the staphylococcus pyogenes albus, which was invariably present. M. Protcopopoff (1890) in like manner found it possible to isolate several different forms of micrococci.

As the result of my own work previous to 1891 (in which year my first paper was published) it would appear that there are at least three species of micro-organisms—namely, staphylococcus albus, staphylococcus pyogenes aureus, and staphylococcus cereus flavus, corresponding probably to Buist's white, orange, and yellow vaccine respectively—one or more of which are almost universally to be found in every specimen of human or calf vaccine lymph examined. Of these the staphylococcus albus is usually to be found in the upper layers of healthy skin of unvaccinated persons. In addition I have been able to satisfy myself as to the occasional presence of the streptococcus pyogenes. I myself have never detected the streptococcus of erysipelas, but Dr. Klein has placed on record the fact that in one instance he isolated this microbe from a specimen of human vaccine lymph the use of a portion of which was believed to have given rise to the occurrence of erysipelas in the human subject. Also I have shown that none of the microbes ordinarily to be isolated from vaccine material can be regarded as specific to vaccinia. Professor Crookshank (1891) succeeded in isolating from various specimens of vaccine lymph—by the method of plate cultivation—an immense number of bacteria, including micrococci, bacilli, torulæ, &c. All of these he recognises as well-known saprophytic bacterial forms associated, some of them, with processes of suppuration, but none of which, he says, can be regarded as the contagium of vaccinia seeing that no single one of them is constantly present in vaccine lymph, human or bovine. M. Besser (1893) found in the papules of a case of small-pox at the fifth day a small bacillus which he is disposed to look upon as the specific organism of variola. He obtained cultures on various nutrient media, coverslip preparations from which always showed the organisms arranged in palisade-like rows. The late Professor Straus (1893) found that the seeding of gelatin plates with fresh vaccine material, whether glycerinated or not, gave rise to the appearance of numerous colonies of micrococci, among which the staphylococcus pyogenes aureus and albus were most frequently met with. When glycerinated lymph which had been kept for a considerable period was employed in similar fashion the number of colonies was greatly diminished. The paper, in which he collaborated with M. Chambon and M. Ménard, is illustrated with three figures of plate cultures from vaccine lymph which had previously been stored for different periods of time. M. Anthony (1893) in the course of the examination of a number of different specimens of vaccine lymph—glycerinated and otherwise—found that four different kinds of micrococci and three species of bacilli are apt to be present. Of these what he terms from its appearance the porcelain micrococcus is invariably present in fresh vaccine. The other three micrococci included the staphylococcus pyogenes aureus, a greyish white micrococcus liquefying gelatin, and a yellow micrococcus often present which does not liquefy gelatin and which grows easily in peptone beef broth, on gelatin, and on agar. The four bacilli noted by him include the bacillus subtilis, the bacillus mesentericus, a fluorescing bacillus, and a motile bacillus which grows in the form of yellow colonies. All these bacilli, according to this observer, represent impurities of the lymph. As the result of his researches M. Anthony concludes that vaccine lymph cannot be regarded as above suspicion as long as it is found to contain any microbes other than the porcelain micrococcus. The inoculation of cultures of his porcelain bacillus on heifers afforded only negative results. M. Maljean (1893) published a paper in which he describes the occurrence in vaccine lymph of two yellow cocci, of which one liquefies gelatin and the other does not, and of a peculiar micrococcus which is of a brilliant white colour when grown on various media and to which he gives the name of *coccus vaccinal;* this micrococcus is larger than streptococcus pyogenes and in cultures it grows as isolated points, as diplococci, and in short chains. Maljean states that this coccus gave rise in the guinea-pig to the formation of a suppuration and on the calf to a typical vaccine eruption. Other observers, however, employing the same cultures failed to obtain a positive result.

Dr. Klein agrees with me in maintaining that none of those microbes which ordinarily can be cultivated from vaccine lymph are "an essential inhabitant in vaccine" or "can have anything to do with its active principle." In the report of the medical officer to the Local Government Board for 1892–1893 he, however, described a peculiar, extremely minute bacillus as occurring in calf lymph and in variolous lymph of human origin obtained in an early phase of the disorder, in calf lymph from 72 to 96 hours after vaccination and in human variola during the third or fourth day. In both instances the lymph was collected aseptically. Clear lymph only, as free as possible from epidermal débris was used for film specimens, which, after heating and treatment with 30 per cent. acetic acid for some minutes, were subjected to prolonged staining in alcoholic gentian violet. Some of the films of calf lymph (collected after removal of the epidermis as a whole) showed an abundance of these minute bacilli, generally massed together, some of the specimens looking indeed like film specimens of an artificial culture. Lymph of early human variolous vesicles showed similar bacilli, but not so abundantly. Calf lymph taken at later stages (five or six days old) showed no bacilli or only a few here and there. In certain of these bacilli from vaccine lymph Dr. Klein succeeded in demonstrating spore-like bodies which, together with the absence of the bacilli in the lymph of later stages, led him to the conclusion that disappearance of these bacilli from the lymph was possibly the result of their having broken up after the formation of spores, which might alone be present about the time of maturation of the vesicle. Dr. Klein adds that these bacilli are incapable of cultivation in the ordinary culture media, no growth whatever having been obtained by him on solidified blood serum, glycerine agar, ordinary agar, sugar gelatin, or ordinary gelatin, although in specimens of the same lymph as was employed for this purpose, and which on transference to the calf produced perfect vaccine vesicles, bacilli were found in abundance. MM. Baillard and Anthony (1894) have worked at the question of the number of microbes present in vaccine which has been stored for various periods. Baillard constantly found in the lymph a white staphylococcus, a yellow staphylococcus, and bacillus subtilis. His experiments led him to the conclusion that, by keeping, the number of germs contained in glycerine pulp becomes considerably diminished, but that germs never completely disappear. After as long a time as seven months the material with which he was experimenting still contained some living germs, among which were the bacillus subtilis and staphylococcus albus. Leoni (1884) also experimenting on the effect of glycerine in the purification of vaccine lymph found that the microbes usually had disappeared in from one to four months. Dr. Buttersack (1894) described the appearance in vaccine lymph, dried on cover glasses, of a dense network of threads associated with numerous granules which he considered as peculiar to vaccine. These threads he regarded as the growing vegetative part of a vaccine fungus, the granules in his opinion representing spores. It appears fairly certain, however, that what he believed to be a mycelium with spores in reality consisted merely of threads and granules of fibrin or of some

other albuminous substance. In this same year (1894) I published a description of numerous minute bacilli sometimes to be found in considerable numbers in the vaccine vesicles both of the calf and the human being at an early stage of their development, in this respect apparently confirming the experience of Dr. Klein which was published in the same year, and of which mention has already been made. Similar bacilli were also demonstrated by Mr. Kent and myself in sections of skin passing through the site of a vaccine vesicle obtained from the calf.

An account of certain experiments dealing with the possibility of cultivating these micro-organisms and also a similar one isolated from variolous material I propose referring to later. M. Ruete (1894) obtained what he believed to be pure cultures of the specific agent of vaccine from calf lymph, this consisting of a micrococcus, the toxin elaborated by which he termed vaccinin. He failed, however, in his attempts at inoculation of the human being. In 1895 Landmann found that in Germany no less than 80 per cent. of certain children vaccinated successfully presented an excessive inflammatory condition of the arm, sometimes of an erysipelatous or hæmorrhagic character. In searching for the cause of these unfortunately numerous complications Landmann undertook an elaborate study of the lymphs distributed from 13 of the German institutes. As a result of his research he found that the number of germs present in the various specimens of lymph varied from 50 to no less a number than 2,500,000 per cubic centimetre. Among the microbes which he succeeded in isolating were the streptococcus pyogenes, the staphylococcus albus, and the staphylococcus aureus. Two American observers, Dr. Stephen C. Martin and Professor Ernst, recorded in 1895 the isolation of a micro-organism which they considered to be specific to vaccinia. This was a short, thin bacillus which they found was capable of growth on serum obtained from ox or horse's blood but not on other media. The growth, which is of a white colour, forms chains and under certain circumstances, according to these observers, takes on the form of a micrococcus. With a cultivation of this microbe of the fourteenth generation they produced a vaccine vesicle on an infant in one attempt out of ten, better success, however, attending their attempts at inoculation of a calf. M. Le Dantec in the same year (1895) found in lymph, staphylococci, the reactions of which he says shows that they are related to the ordinary pus cocci. These staphylococci differed according to the species of animal from which they were obtained, those isolated from calf lymph liquefying serum, while those obtained from human lymph did not do so.

M. Arloing (1896) experimented with the lymph of vesicles of horse-pox obtained by injecting a colt intravenously with vaccine lymph purified as far as possible by storage in glycerine. From the resulting vesicles he first carefully removed the superficial layer of epidermis and then collected the underlying material with aseptic precautions. With this he inoculated tubes of glycerine beef broth, obtaining as a result in each instance a growth consisting of a micrococcus which, however, when inoculated in turn on the animal body produced neither an eruption nor immunity to subsequent vaccination. From his researches M. Arloing concluded that the virulent agent of vaccinia must be of the nature of a soluble toxin. M. Boureau and M. Chaumier, also in 1896, found a number of different microbes in specimens of vaccine lymph, including staphylococcus aureus, cereus and albus, micrococcus flavus, bacillus subtilis and luteus, bacterium termo, proteus vulgaris, a cladothrix, a fluorescing bacillus, and several other bacilli, which they were unable to identify. They make the extraordinary statement that it is only when the vaccine has lost its virulence that the microbes originally contained in it completely disappear; that, in fact, the number of staphylococci present at any given time afford a measure of the potency of the lymph.

Dr. Saint-Yves Ménard (1896), in reply to this communication, reiterated the contention of Straus and himself, confirming my previous work on this subject, that the microbes which can be isolated from vaccine lymph by the ordinary methods are in no way essential to its specific action and that by the end of six months, at any rate, no micrococci can be obtained from "glycerinated emulsion," which has been preserved in sealed tubes, although it is still perfectly active as vaccine. Dr. Sacquépée (1896), in the course of examinations of various samples of vaccine lymph, met with three species of staphylococcus: the bacillus subtilis, the bacillus mesentericus, and another unknown species of bacillus. Of these he regards the bacillus subtilis and the bacillus mesentericus as evidences of accidental impurity of the lymph. Delobel and Cozette (1896-97), collaborating with Gourny, in common with most other observers, found that the bacteria most constantly present in vaccine lymph are a white and yellow micrococcus. They state that when due care is not exercised in the collection of the lymph, bacillus subtilis and bacillus mesentericus may be found. Inoculation experiments on the human being and on the calf afforded them only negative results. M. Paul, also in 1896, published a voluminous account of his researches on the occurrence and significance of pathogenic micro-organisms associated with vaccine lymph. He lays stress on his observation that the staphylococcus pyogenes aureus is by far the most ubiquitous of the microbes that are found in vaccine lymph, although it is certainly not an essential concomitant. He finds, moreover, that it exhibits both variable resistance and variable virulence. A sample of lymph, for instance, of supposed Jennerian stock he found to contain this staphylococcus in a phase of much higher virulence and resistance than was a specimen of this same microbe obtained from a sample of calf vaccine lymph. This staphylococcus, he adds, may be present without causing suppuration, but the use of a lymph containing it in large quantities should naturally be avoided. According to this observer the number of bacteria present in fresh lymph appears to be independent both of the origin of the stock from which it is derived and of the method of vaccination employed. This, as shown elsewhere, does not accord with my experience. Quite recently (1897), in conjunction with Dr. Blaxall, I have carried out a further extensive series of investigations on the bacterial flora of calf vaccine, with the outcome that, as the results of former work had led us to anticipate and as has been repeatedly shown by other observers, calf lymph (or, rather, vesicle pulp) may contain a large number of micro-organisms which are in no way concerned with its specific activity. Human lymph, as a rule, we find to contain remarkably few microbes, but probably this might not be the case were the whole substance of the vesicle removed, as is now usual in collecting from the calf. We have shown also, as have other investigators, that lymph, if carelessly collected, is often found to be contaminated with many of the numerous saprophytes common to dust, &c., in addition to certain possibly pathogenic microbes which may be present.

On the other hand, lymph taken directly from calves vaccinated with vaccine material rendered free from extraneous organisms, as, for instance, glycerinated lymph a month after emulsification, often presents remarkably few colonies of "extraneous" organisms. In one such sample only four colonies appeared on a plate culture of the lymph, one of staphylococcus cereus albus and three of a light brown yeast. If a vaccine vesicle of a healthy child or calf be carefully opened at an early stage with all aseptic precautions and a droplet of the lymph which exudes from it be submitted to bacteriological examination it may not unfrequently be found, as Dr. Klein has also demonstrated, that such lymph is absolutely pure in the sense that it contains no micro-organisms which will grow on ordinary culture media. Yet it is perfectly efficient as vaccine. But, on the other hand, as just stated, in lymph obtained in ordinary fashion from mature vesicles inoculation of plates or tubes of nutrient material usually results in abundant growth of micro-organisms. Those most commonly met with are, morphologically and culturally, identical with the staphylococci found in pus—viz., the staphylococcus aureus, albus, cereus albus, and cereus flavus. Of these the first two liquefy gelatin, the other two do not. Occasionally the streptococcus of pus may be present, as also the staphylococcus citreus. Other microbes of a purely saprophytic nature that are met with include the common hay bacillus, bacillus mesentericus, varieties of proteus, yeast moulds, and sarcinæ. These, however, can for the most part be excluded by careful manipulation, so that in vesicle pulp which has been collected with all due precautions nothing is found beyond some one or more of the four first-named staphylococci, of which a white staphylococcus is perhaps most common, and possibly one or more yeasts. Thus our most recent experience confirms in all essential particulars my first report published in 1891.

The fact that in vaccine lymph or in the vesicle pulp micro-organisms are found which, under certain circumstances, are known to be provocative of suppuration does

not in any way imply that the lymph in which they are present is purulent or that if such staphylococcus-infected lymph were employed for vaccination in the human being suppuration would necessarily ensue. The recent Berlin Commission, indeed, reports that of 18 samples of lymph examined, only 5 contained staphylococci which were pathogenic for small animals and, further, that no harm resulted on the vaccination of children with these particular specimens of lymph. From this circumstance it is evident that the virulence of these micro-organisms for rodents, for instance, cannot be accepted as a measure of their power to affect injuriously the body tissues in the healthy human subject. The streptococcus of pus must be a rare inhabitant of calf lymph, the Berlin Commissioners, indeed, stating that they never once met with it in the course of the examination of 64 samples of lymph. In human lymph it is by no means of so unfrequent occurrence. With reference to the question of the possible presence of the tubercle bacillus in lymph I am not aware of any authentic record of its having been found even in lymph derived from the calf. But, as I shall presently have occasion to show, we are enabled, by the use of a special method of preparing and testing vaccine lymph, to obviate any possibility of danger to which the presence of the tubercle bacillus or other pathogenic microbes in the original specimen of lymph might conceivably give rise.

In 1894, as already mentioned, I showed, concurrently with Dr. Klein, though independently, that in specially stained specimens of vaccine lymph taken at a period antecedent to full maturity of the vesicles the presence of bacilli of extremely small size and in practically pure culture can be demonstrated. These bacilli cannot be found, or only with difficulty, in mature lymph, for the reason probably that they have by then given place to spores. For some time it appeared impossible to obtain further evidence as to the *rôle* of these bacilli, as they altogether refused to grow on any of the ordinary culture media and under either aerobic or anaerobic conditions, though this very fact obviously tends to show that they are not of a merely saprophytic nature. In the following year, however, I carried out certain experiments which appear to prove that it is possible to obtain a growth of similar bacilli from variolous material in a particular culture medium and even to carry on such growth in secondary cultivation. The experiments which have been instituted in this direction are but few in number and it is evident that the exact conditions essential to success have yet to be determined. As it seemed to me, the desideratum for the purpose of inducing growth of the supposititious micro-organisms was a medium which had not been artificially sterilised, which *à priori* should afford the necessary pabulum, and which at the same time was secure in its circumstances against contamination. Hence the choice appeared to lie between the intra-peritoneal fluids of one or another living animal and the hen's egg, which has already been made use of as an alternative culture medium. As regards intra-peritoneal fluid I foresaw difficulty in that it is apt to contain leucocytes which might easily vitiate experiment and accordingly I adopted the hen's egg as a matter of first instance. I had no experience to guide me as to the best method of carrying out the inoculation of the egg or as to the period of incubation best suited for the object I had in view, and my attempts for a time therefore met with but small success. My inoculations were carried out by first cleansing the surface of the egg with corrosive sublimate solution and afterwards with alcohol and then breaking a small hole in the shell by means of a sterilised needle and forceps. Through the opening thus made I mixed the yelk and albumen of the egg by means of a platinum needle and then carried out the inoculation by means of a glass capillary pipette, which had recently been drawn out in the blow-pipe flame. For the purpose of such inoculations I employed variolous crusts obtained from the small-pox ships of the Metropolitan Asylums Board. These crusts were rubbed up in a small glass mortar with a minimal quantity of water or sterilised normal saline solution. Of the resulting emulsion a drop or two was then taken up into the glass pipette and the inoculation carried out. Finally, the small hole in the egg was closed up either by means of a small pledget of sterilised cotton-wool soaked in collodion or with melted sealing-wax. The eggs inoculated in this manner were then placed on beds of cotton-wool and kept in the incubator at a temperature of 37° C. Here they were left for varying periods of time, a month being the period which was eventually found to be that which was most desirable. On opening an egg thus treated I found that in its interior was contained a creamy material which in great part had replaced the ordinary egg contents. This material examined in cover-glass specimens appeared to contain a pure culture of one organism only—namely, a bacillus which morphologically was not to be distinguished from the bacillus which I have previously described as to be found in early vaccine lymph.

My next step was to attempt to grow it in subculture and to make observation also of the effect of its direct transference by cutaneous inoculation into the calf. As regards attempts at subculture in all media most usually employed for such purpose, including gelatin, sugar-gelatin, agar, glycerine-agar, sugar-agar, and serum, these at this time failed, as subculture of the bacilli contained in vaccine lymph had always failed when the ordinary culture media are adopted, but with the calf it was different, and as the result of inoculation of egg cultures on this animal I obtained a strain of lymph which after being passed through a series of calves was successfully employed for the vaccination of children. The calves were all subsequently vaccinated with negative results.

More recently Dr. Blaxall and I have been further investigating the possibility of the cultivation in artificial media of the micro-organism specific to small-pox and vaccinia respectively. Our work received considerable impetus by the discovery that certain culture tubes which had been inoculated with vaccine lymph, but which appeared to remain completely sterile, nevertheless contained a growth of a microbe undistinguishable morphologically from that which I found in egg cultures. This growth, although invisible to the naked eye, became obvious when cover-glass impressions were taken from the surface of the nutrient medium and afterwards stained and examined with the microscope. Dr. Blaxall subsequently devised a method by means of which pure cultivations of apparently the same organism were obtained on the surface of agar plates and this not only when vaccine lymph both of human and bovine origin was employed, but from variolous lymph as well. From these plates agar tubes and tubes of peptone beef broth were also in turn inoculated. In these, again, in the first removes practically no growth was visible except on careful examination by reflected light, but as generations further removed from the original stock were obtained the growth became more obvious, showing as a haziness in the fluid media and as a semi-translucent greyish white line on a sloping surface of agar. Broth cultures of the ninth and succeeding generations when employed for the inoculation of calves afforded in our first series of experiments results which we regarded as most encouraging, seeing that we were enabled to carry on the infection to other calves and subsequently to children, in all of which it took the form of apparently typical vaccinia. Some weeks after the calves were vaccinated with active calf lymph but without result. A later series of experiments, however, were not attended with similar success. The reasons for so great a divergence in our results at one and another time are by no means obvious unless possibly the fact of increased vegetative function shown in the latter subcultures of the microbe may have had as a concomitant a lessened degree of pathogenicity. On this point we are at present unable to make any definite statement, but needless to say the investigation is being continued.

Another direction in which our research work has been extended was suggested to us by certain statements in the report of the Berlin Scientific Commission. In that report an account is given of certain experimental inoculations performed by Freyer with the juice of the spleen, liver, inguinal and mesenteric glands, and marrow of previously vaccinated calves. Using such material vesicles were produced by the employment of almost every organ, which shows in Freyer's opinion that the vaccine germ must be conveyed to them by the circulating blood. This general distribution of that micro-organism takes place, he states, up to three or four weeks after vaccination, but no mention is made by him as to the earliest period at which it was found to occur. The greatest amount of success was obtained by the use of inguinal gland and spleen juice. He further stated that since calves were successfully vaccinated with this material the postulate of an absolutely bacteria-free efficacious lymph was complied with. It is of course obvious that where generalised vaccinia occurs as the result of a local vaccination, as, according to Chauveau, is always the case with solipeds, the micro-organism concerned

must have been conveyed to a distance from the original point of insertion by means of the circulation. Presumably this may also take place, although perhaps to a more limited extent, in that form of the disease where, as in the case of the vaccination of the human being or the calf, the resulting disorder remains to all appearance strictly localised, a secondary eruption being prevented by the spleen or other organ, such as the liver, being enabled to seize upon and ultimately destroy any of the specific germs that happen to be carried thither. It seemed to me that if Freyer's results were capable of confirmation the possibility of vaccinating by means of spleen juice, for instance, must depend on the employment of such material at a period sufficiently late to ensure the active principle having reached the particular organ and antecedent to that at which it would have been destroyed. I thought also that if the most favourable period could be determined it would be possible then to obtain a material free from bacterial growth other than that on which its potency for vaccination depended—a material, therefore, which would afford exceptionally favourable opportunity for the isolation of the organism specific to vaccinia. But, unfortunately, notwithstanding the categorical statements in the report of the Berlin Commission, we have been unable as the result of numerous experiments to obtain similar results *quâ* vaccination to those described by Freyer. Neither have we been able to demonstrate the presence of any micro-organism in culture media inoculated from the fresh spleen, liver, or glands obtained at various dates after vaccination or in the interior of fresh or hardened sections of these same organs. We have therefore temporarily abandoned this portion of our inquiry pending the receipt from Freyer of more detailed instructions.

PROTOZOA.

Owing no doubt to the fact that hitherto it has appeared practically impossible to isolate from vaccine or variolous lymph any bacterium which could with reason be regarded as specific to these affections, a number of observers have turned their attention to the search for a micro-organism of somewhat higher type which might by chance be concerned in the dissemination of vaccinia and variola respectively. Among the first experiments in this direction must be mentioned Renault of Lyons in 1881, Van der Loeff in 1886, and Hlava and Pfeiffer in 1887. It was not, however, until the publication in 1892 of Guarnieri's work that interest in the problem was seriously aroused. Since then the literature of the subject has expanded enormously, owing mainly to the labours of numerous continental pathologists, the only English contributions to the mass of experimental work published up to the present being those of Dr. Ruffer and Mr. Plimmer and of Mr. Jackson Clarke. Renault (1881) first called attention to the fact that peculiar bodies which he regarded as parasitic could be demonstrated in the epithelial cells of the vesicles in vaccinia and variola. Van der Loeff also on examining in the warm chamber a hanging drop of clear calf vaccine lymph discovered "numerous small bodies capable of independent movement," of which, however, he gives no further description, although he offered the opinion that they were living organisms which should be classified with the rhizopoda.

In 1887 L. Pfeiffer described the occurrence in lymph obtained from cases of vaccinia and variola of small, unicellular, generally spherical bodies, which he believed to constitute the specific contagium of these diseases. These parasites he found in still greater numbers in the Malpighian layer of the skin, multiplication taking place by division and also by endogenous formation of spores. These statements were in part confirmed immediately afterwards by Rieck. Guarnieri, having invariably found in the epithelial cells of the skin in the vesicular stage of small-pox small particles half as large as the cell nucleus or even smaller, next attempted (in 1892) the cultivation of similar bodies in the living animal. For this purpose he inoculated the cornea of rabbits and guinea pigs with vaccine lymph, with the result that these protozoa, as he considered them, appeared in the cells of the epithelium covering the cornea. After an interval of about fifty hours from the time of inoculation the surface of the cornea was scraped and the material examined in a hanging drop of aqueous humour. Guarnieri also employed for examination sections taken through the site of inoculation and stained in various ways. In either case he found numerous "parasites" within the epithelial cells of the affected area, generally occupying a zone of the protoplasm immediately surrounding the nucleus, but not intruding upon it. In the hanging drop they appeared as little refractile bodies endowed with slight amœboid power. Examination of sections further showed that they vary much in shape and size, and, further, that they are most numerous in the deep layers of the epithelium, the superficial cells not being involved. To this "parasite" Guarnieri gave the name of cytoryctes vaccinæ. Monti obtained similar results and both Guarnieri and Monti exhibited at the International Congress of Medicine at Rome preparations in which they demonstrated the presence of the parasite. Dr. Ruffer and Mr. Plimmer, who in this country had been working at the subject, also attended the Congress and were thus able to compare their own specimens with those shown by Guarnieri and Monti, thereby establishing, according to Dr. Ruffer, the fact that the protozoa described by all of them were identical in character. Dr. Ruffer and Mr. Plimmer, writing in 1894, described the alleged parasite as a small round body which, when treated with appropriate reagents, appears to have a more darkly staining centre. It is, they say, about four times the size of an ordinary staphylococcus and generally lies in a clear vacuole in the protoplasm of the epithelial cells of the stratum Malpighii, and occasionally indents the nucleus, although they have not found it enclosed in the latter body. These observers stated that they have found the same organism in the sections of skin from small-pox patients and in small-pox pustules of the larynx and the trachea. In the same year (1894) L. Pfeiffer not only confirmed the results obtained by Guarnieri but announced also the discovery, in the blood of persons suffering from small-pox and in the blood of children and calves that had been vaccinated, of amœboid cells which he regarded as parasites. These he found to be most numerous during the pyrexial stage of the disorder, whether variola or vaccinia. These bodies, which are somewhat larger in the blood of the calf than in that of the child, being in the latter about a quarter the size of an average blood corpuscle, are, Pfeiffer states, provided with pseudopodia and are occasionally flagellated. According to this observer they also contain from one to four nuclei which are readily stained. These occur free in the blood, not being contained in cells as is the case in the vaccinated cornea; nevertheless, Pfeiffer considers that they represent a similar stage in the life-history of the organism, of which the more mature form is of a cystic nature, to which he gives the name "monocystis epithelialis." This cyst he believes to give rise in due course to a number of spores. It should be mentioned that he describes similar bodies as occurring in various other vesicular eruptions of men and the lower animals. A Japanese observer, Ogata (1895), as the result of careful microscopic examination of stained film-preparations of vaccine lymph derived from the human being and calf and also of human variolous lymph, concludes that certain protozoa which he had been able to demonstrate in each case should be classified with the Gregarinidæ. Further confirmation of Guarnieri's experiments was afforded in 1895 by von Sicherer, Ernst Pfeiffer, and Mr. Jackson Clarke. According to Ernst Pfeiffer the bodies vary considerably both in size and shape, being sometimes as large as a red blood corpuscle. They resemble the corpuscles also in their affinity for certain staining reagents.

There can, of course, be no doubt as to the occurrence of most of the appearances described, although we may not be prepared to accept the interpretation put upon them; and in this connexion it is well to bear in mind not only that the bodies enclosed in cells, described by Guarnieri, Monti, and Ruffer, are said by them to differ essentially in their staining reaction and in their appearance from those of the Pfeiffers, van der Loeff, and others, but also that all the more recent experimental work in this direction has been carried out on the cornea of the rabbit and the guinea-pig, both of them animals which there is reason to believe are insusceptible to vaccinia. It is therefore, I think, conceivable that the "parasites" in question may represent merely the result of epithelial irritation caused by the scarification, together with that—of a non-specific nature, however—set up by the vaccine lymph employed. That such is indeed the case there is now a considerable amount of evidence to show. Thus Ferroni and Massari (1893) expressed the belief that Guarnieri's so-called parasites are in reality derived from the nuclei of the cells or are due to the immigration of leucocytes. They base their opinion on the results of certain

experiments devised by them, in which they inoculated the cornea of rabbits and guinea pigs with croton oil and india ink. On subsequent examination of stained sections they were able to demonstrate the presence in the epithelial cells of numbers of small bodies apparently identical with those described by Guarnieri. It should, however, be stated that Ernst Pfeiffer failed to find them under similar circumstances, although they were invariably present after the inoculation with vaccine lymph. In the annals of the Pasteur Institute for April, 1897, appeared a most important paper by M. Paul Salmon. This investigator brings to bear on the subject a thorough knowledge of modern staining reactions, by the light of which he shows that Guarnieri's parasites, while differing in their affinity for certain stains from either the protoplasm, nucleus, or nucleolus of the epithelial cell, correspond in all respects as judged by such tests to the nuclei of the migratory leucocytes, the chromatin masses of which rapidly break down in the substance of the invaded cells. He sums up the matter in the following words: "Le pseudo-parasite n'est pas une formation endogène; il a donc forcément une origine extra-cellulaire, extra-épithéliale, et *la petite masse de chromatine ne peut avoir qu'une origine; les cellules migratrices.*" The paper is illustrated with drawings showing all stages of the process of invasion of the corneal epithelium by the leucocytes, from that of their first appearance in the underlying tissue to that of their final dissolution, represented by the presence of minute granules of chromatin only, in the protoplasm of the epithelial cells. No one, I think, comparing this plate with the drawings and descriptions of the corneal "parasites" of Guarnieri and others, can fail to be struck with the truth and completeness of Salmon's explanation of the facts previously observed.

Recent researches have tended to confirm the statements of L. Pfeiffer as to the presence also in the blood of variola and vaccinia, especially during the pyrexial stage, of minute, free, granular amœboid cells. It is, however, doubtful whether it is possible to demonstrate a nucleus. These cells, as already mentioned, are regarded by Pfeiffer as the causative agent of these diseases. This question has been investigated in America by Dr. Walter Reed (1897), whose attention was directed in the first instance to the microscopical examination of fresh preparations of the blood of vaccinated monkeys and calves and subsequently to that of vaccinated children and small-pox patients. Of 11 vaccinated animals (9 monkeys and 2 calves) whose blood was examined Dr. Reed found in the blood of 7 (6 monkeys and 1 calf) "granular amœboid bodies, having a diameter about one-third that of a red blood cell" during the active stage of vaccinia, which on the decline of the local inflammation again disappeared. As showing, however, that these bodies have no causative relationship to vaccinia is the fact that Reed occasionally met with quite similar bodies in the normal blood of healthy children and of monkeys. This same observer states that pale amœboid bodies containing a few dark pigment-like granules may also be present in the blood from cases of variola in the human being and the monkey. The blood of vaccinated children and monkeys was found occasionally to contain bodies of like appearance. Dr. Reed does not appear to have known of a paper published in the previous year (1896) by M. F. Müller, an assistant in Nothnagel's clinic in Vienna. Therein Müller gives a description of "small, generally round, colourless granules" which he found constantly present in the freshly drawn blood both of healthy persons and of those suffering from various diseases. These granules—which may, he says, be readily distinguished from blood-plates—would appear to be of like origin with the minute granular amœboid bodies originally discovered by Pfeiffer. Further light has been thrown on this subject by the labours of Stokes and Wegefarth (1897), who carried out a lengthy series of observations in the bacteriological laboratory of the Baltimore Health Department.

The conclusions at which they ultimately arrived may be briefly set out as follows. In the normal blood plasma and serum of man and the lower animals varying numbers of granules apparently derived from neutrophil and eosinophil leucocytes are usually to be found. There is reason to believe that these granules play some part in bringing about agglutination and cessation of mobility of many pathogenic bacteria and of ultimately destroying them, a property possessed by the normal blood. That this is so is judged from the fact that on filtration of dogs' or rabbits' serum through a Müncke porcelain filter this effect on bacteria was no longer exhibited, although the potency of the serum in this direction could be restored by adding to it a sediment containing granules.

Stokes and Wegefarth make also a suggestion which may not impossibly account for the undoubted fact that, as stated both by Pfeiffer and Reed, the minute granular cells described by them are most readily found in the blood during the progress of certain infective diseases, although, as Reed shows, they must also be regarded as normal constituents of the blood. The suggestion referred to is that the bactericidal power of both leucocytes and serum in man and many animals is due to the presence in them of specific granules, derived in either case from leucocytes, which in presence of invading bacteria are given up to surrounding fluids or tissues. As the outcome of the most recent investigations dealing with the question under discussion it must, I think, be admitted that although Guarnieri and others who have described the presence of protozoa in the blood and tissues of man and the lower animals during certain stages of invasion by variola or vaccinia are undoubtedly correct in their statements as to the occurrence of the particular bodies described by them, they are altogether mistaken as to the true nature and affinities of these bodies. There would indeed appear to be good reason for the belief that these so-called parasites are, in fact, nothing more or less than the fragments of amœboid leucocytes which had originally invaded the peripheral circulation and in turn the particular tissue affected under the influence of chemotaxis.

VARIOLA AND VACCINIA IN THE MONKEY.

Professor Michael Foster suggested to me some years ago that in view of possible deterioration of lymph stocks after employment through a long series of generations it would be well if possible to devise some practical means of investigating the efficiency of the protection afforded by some of those at present in use against variolous infection. The inoculation of small-pox on the human subject being now a penal offence I turned my attention to the monkey tribe on account of their similarity in many respects to man, although assured on high authority that they were not susceptible to either vaccinia or variola. On putting the matter to the test, however, I was agreeably surprised to find that this was not the case, the inoculation of vaccine and variolous lymph having each of them given in my hands successful results in every instance in which I have tried it on the monkey. Briefly described, the *modus operandi* has been as follows: the upper arm or occasionally the inner surface of the thigh is shaved on both sides of the body; the skin is then washed with a solution of some disinfectant, such as corrosive sublimate or carbolic acid, and afterwards with alcohol. Each arm (or thigh) is then scarified in three or four places and the lymph well rubbed in. In the first series of experiments I used ether as an anæsthetic, but I afterwards found this quite unnecessary, as the monkey appears by no means to dislike the scratching process, becoming absolutely quiet as soon as the operation is commenced, and remaining with limbs limp and eyes half closed, as if hypnotised, until its termination, when it at once becomes again as lively as ever. In the case alike of variola and of vaccinia the local result of inoculation attains its acme (*quâ* vesiculation) in the monkey, as in the human being, about the eighth day. The first signs of reaction appear usually on the third day, by which time, if variolous lymph has been used, there is a distinct though very thin crust over the site of inoculation. In the case of vaccinia the appearance of crust at this date is less marked. By the fifth day vesiculation in both cases has generally commenced, this becoming more obvious up to the eighth day, though even then it is much less marked in variolous cases than in those which have been vaccinated, the difference being recognised with the greatest ease. Later the vesicle gives place in either instance to a pustule, by which time there is not unfrequently considerable swelling of the skin and subcutaneous tissue and of the nearest lymphatic glands, the pustule gradually dries up and a scab is formed, which is more pronounced in the case of vaccination than variolation, and which falls off some time during the third week, if the monkey has not picked it off before. The chief difference noticed between the effects resulting from the local inoculation of these two diseases is that in the case of variola there is more or less of a crust from the first; that vesiculation is less marked than

n vaccination; that about from the ninth to the eleventh day a general eruption may appear which in some instances, as in a monkey which, at the request of Professor Foster, was inoculated at Cambridge, covers the whole surface of the body; and that the final scab at the site of inoculation is not so elevated in the variolated as in the vaccinated animal. In both cases there is usually a rise in body temperature, which is more marked and longer sustained in variola than in vaccinia. After variolation it was noticed in several cases that the monkey suffered from diarrhœa, that its eyes were suffused, and that it was not as active as usual. A peculiar odour was also noticed quite distinct from the well-known smell of "monkey." In no instance had the experiment a fatal termination.

Having thus proved to my own satisfaction that monkeys are susceptible not only to vaccination but also to small-pox I next determined to make trial as to the protection against small-pox afforded in the monkey by previous vaccination and the protection against vaccination afforded it by variolation, and I went on to compare the effect produced by the use of human and of calf vaccine respectively. For this purpose humanised lymph was obtained from Birmingham, where, to the best of my belief, the same strain has been continuously carried on by means of arm-to-arm vaccination for the past 38 years. The calf lymph used was obtained from the Government Animal Vaccination station in Lamb's Conduit street, while small-pox lymph was supplied to me from the hospital ships, from Warrington, and from Manchester. The following experiments will serve as illustration of the system I pursued:—

Experiment 1.—On July 13th, 1892, I vaccinated a male rhæsus monkey in four places on the left arm with calf lymph on points taken at the Animal Vaccine Establishment on the previous day. On July 20th, the eighth day, the appearance presented was undistinguishable from that of a successful case of human vaccination. On July 23rd the vesicles had given place to four large scabs raised nearly $\frac{1}{8}$ in. above the surface of the arm, while the surrounding inflammatory zone had nearly disappeared; the axillary glands on the same side were considerably enlarged. The arm was drawn on this day by Mr. Lapidge. By Aug. 9th the scabs had all come off and the monkey was again vaccinated, but this time on the opposite arm in two places and on the inside of the right thigh, also in two places, with humanised lymph of ascertained activity. The animal was carefully examined day by day up to Aug. 17th, but no sign of the second vaccination having "taken" was observed.

Experiment 2.—On July 19th a large female rhæsus monkey was inoculated by scarification in eight places (four on each arm) with two tubes of small-pox lymph from the hospital ships. It was obtained from a patient, aged nineteen years, stated to have been vaccinated in infancy, who was suffering from a semi-confluent attack of the disease. The lymph had been sealed up in carefully sterilised tubes. On July 23rd (the fifth day) the right arm showed papulation and commencing vesiculation. The axillary glands were slightly enlarged. On April 18th, a month after inoculation, this monkey was vaccinated in four places on the inner aspect of the right thigh with active calf lymph. No result followed the operation.

It is, I think, hardly necessary here to enter into details of the numerous experiments which have been performed at intervals of from one to five months after the primary inoculation, whether vaccinal or variolous, and I will merely add that in no instance did anything in the nature of a successful result follow the first or subsequent revaccinations. From these experiments it would appear that the protective power of lymph obtained from these three different sources when inoculated on the monkey is practically identical in all respects.

In discussing the origin of the various lymph stocks at present in use Dr. Collins and Mr. Picton in the Minority Report appended to the Final Report of the Royal Commission on Vaccination make a point of the impossibility of employing at the present day what used to be known as the "variolous test" as a proof of the efficacy or the reverse of any particular strain of lymph. In view, however, of the results of my experiments with monkeys this criticism of Dr. Collins and Mr. Picton falls to the ground, since if it is desired to apply the "variolous test" to any given lymph stock all that is necessary is to vaccinate a monkey with a sample of the lymph in question and subsequently to inoculate the animal with potent small-pox lymphs after the lapse of such period from the first operation as may be thought desirable.

ABSTRACT OF TABLES ILLUSTRATING

The Hunterian Lectures.

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THE Hunterian Lectures, abstracts of which were published in THE LANCET of April 16th, 23rd, and 30th, were illustrated by a valuable series of tables of cases of operations on the kidney. All the tables except the last refer to cases operated on by Mr. Morris. Table I. recording the cases of nephrolithotomy performed by Mr. Morris himself we print herewith, but we regret that the demands on our space prevent us from giving more than a *résumé* of the others.

Table II. contained cases of nephrotomy for stone. There were 44 cases in all and of these 27 occurred in males and 17 in females. The youngest patient was a male, seventeen years old, and the oldest was also a male, aged sixty-four years. The results were as follows: 33 cases recovered from the operation, one of these dying seventeen days later from apoplexy, and in 11 cases the patient died within a short time of the operation though the fatal result was in several of the cases hardly to be attributed to the operation itself.

Table III. contains Mr. Morris's cases of nephrectomy for stone. These are 18 in number, with 5 deaths. 13 of the cases were males and 5 were females.

Table IV. Exploratory Operations.—These cases show clearly the great value of an exploration when the symptoms point to some morbid renal condition; in many of the cases Mr. Morris was able to remove the cause of the symptoms, even though no stone was found. There were 42 exploratory operations and only 2 of the patients died, and of the remainder all were relieved with the exception of 7.

Table V. Operations for Moveable Kidney—In 57 cases Mr. Morris has fixed a moveable kidney and all have recovered, though in one instance the patient was not relieved by the operation.

Table VI. Operations for Hydronephrosis and Pyonephrosis.—In 20 cases there were only 3 deaths.

Table VII. Operations for Tuberculous Disease of the Kidneys.—Of 28 cases 20 occurred in females. In some cases nephrotomy, in others nephrectomy, and in a few partial resection were performed. 5 cases died soon after the operation, but 4 others died later from tuberculosis elsewhere.

Table VIII. Nephrectomy for Fistula or other Cause.—Of 5 cases 3 recovered and 2 died.

Table IX. Operations for Tumours of the Kidney.—There are in all 15 cases—1 of retro-peritoneal tumour connected with kidney, 5 of cystic disease of the kidneys, and 9 of malignant disease of the kidneys. One of the cases with cystic disease died and 3 of the malignant cases; 2 others of the latter died later from recurrence.

Table X. Operations for Injury of the Kidney.—There were 4 cases and all recovered; in 2 the kidney was explored, in 1 nephrectomy was performed, and in 1 ureterectomy.

Table XI. Collected Cases of Calculous Anuria.—In 49 cases an operation has been performed for this condition. The earliest was by Guermonprez in 1870. Of the 49 cases 25 died. This mortality must be considered in relation to the very fatal result of the disease when left untreated.

TABLE I.—CASES OF NEPHROLITHOTOMY.

Year.	No.	Sex.	Age.	Leading symptoms.	Date of operation.	Result.	Remarks.
1880	1	Female.	19	Excessive pain and tenderness in right loin. Great hæmaturia, quite disabling her from work. Symptoms acute for 17 months. Occasional pain in right side for 11 years.	Feb. 11th, 1880; right kidney.	Recovered.	Incision into anterior surface of kidney near hilum. Recovered with a sinus from 1 in. to 1½ in. long, not communicating with the kidney. Weight of calculus, 31 gr. (Vide Transactions of the Clinical Society, vol. xiv., 1881.)
1884	2	Male.	24	Shooting pains to left testis and tenderness in left loin. Some hæmaturia. Frequency of micturition. Symptoms for 2 years	May 10th, 1884; left kidney.	Recovered.	Incision into anterior and lower part of kidney. No sinus. Weight of calculus, 89½ gr. (Vide Transactions of the Clinical Society, vol. xviii.)
1886	3	Male.	42	Pain in right loin. Hæmaturia. Symptoms for 19 years.	May 15th, 1886; right kidney.	Recovered.	No sinus. Weight of calculus, 23½ gr. (Vide Transactions of the Clinical Society, vol. xx.)
1887 (P)	4	Male.	25	Tenderness and aching in left loin. Hæmaturia and slight pyuria. Never colic. Kidney felt hard. Symptoms 9 years; worse of late.	March 16th, 1887; left kidney.	Recovered.	Calculus removed from pelvis. Weight of calculus, 213 gr. No sinus. Nephrotomy and nephrectomy ten years after for recurrent calculus.
1888 (P)	5	Female.	26	Pain in both loins, but chiefly in right, for 4 years. Hæmaturia. Slight pyuria. Oxalate of lime crystals. Tenderness in right loin. Frequency of micturition for 1 year.	Jan. 18th, 1888; right kidney.	Recovered.	Incision into anterior aspect of kidney. No sinus. Weight of calculus, 108 gr.
1889	6	Female.	21	Pain in right loin for 4 years. Swelling for 1 week, which was freely moveable. Hæmaturia and albuminuria.	May 22nd, 1889; right kidney.	Recovered.	One large stone and 7 fragments removed. Total weight of calculus, 1303 gr. Urinary sinus followed. Subsequent left nephrolithotomy, 1890, and right nephrectomy 1891. (Vide No. 9.)
1889	7	Male.	27	Pain and passage of calculi. Slight pyuria. Repeated attacks of pain for 8 years.	July 31st, 1889; right kidney.	Recovered.	Three calculi removed from kidney. Weight of calculi, 69 gr. No sinus.
1890	8	Male.	23	Pain on right side. Hæmaturia. Passed blood in urine when a child and had had pain for 10 years.	Feb. 23rd, 1890; right kidney.	Recovered.	Incision into anterior aspect. Three branched calculi were removed from the renal substance and a much larger one from the pelvis. Total weight 200 gr. Recovered without a sinus.
1890	9	Female.	22	Pain in left loin very severe.	April 23rd, 1890; left kidney.	Recovered.	Incision into pelvis of kidney. Weight of calculus, 513 gr. Sinus present but not urinary sinus. (For previous nephrolithotomy *vide* No. 6.)
1890	10	Male.	40	Pain and tenderness in left loin for more than 20 years.	June 7th, 1890; left kidney.	Recovered.	An oxalate of lime calculus was removed from the cortical part of the kidney. Weight of calculus, 62 gr. No sinus remained.
1890	11	Male.	34	Pain in left loin for 2 years. Hæmaturia, pyuria, and oxalate of lime crystals.	Aug. 29th, 1890; left kidney.	Recovered.	Incision into anterior aspect, and stone found lying in the kidney substance close to the pelvis. Weight, 129 gr. No sinus remained.
1891	12	Male.	35	Pain and swelling in right loin for 1 year. Hæmaturia and pyuria.	Feb. 11th, 1891; right kidney.	Recovered.	Incision into anterior aspect and extraction of a stone. No sinus. Weight of calculus, 27½ gr.
1891	13	Male.	26	Pain and tenderness in left loin and hæmaturia for 2 years.	April 29th, 1891; left kidney.	Recovered.	Incision into anterior surface near hilum. No sinus. Weight of calculus, 34 gr.
1891	14	Male.	48	Pain in left loin for 5 years and hæmaturia on three occasions 3 or 4 years ago, but not since. Frequent severe colic during last four months. Pain shooting into left groin.	May 9th, 1891; left kidney.	Died May 13th, with symptoms of uræmia and intense mental agitation.	The patient was a very stout man and the kidney was very difficult to reach through an oblique wound 12 in. long joined by a vertical incision 3 in. long. Brisk hæmorrhage followed renal incision, but was soon stopped by pressure. Two stones were removed. Post-mortem wound in left kidney 1½ in. long. Left kidney weighed 7½ oz. and was fatty. Right kidney weighed 5½ oz. and was fatty, as were also the liver and the heart. Small branch of renal vein divided and plugged by recent clot. No injury to peritoneum. Weight of calculi, 19½ gr.
1892	15	Male.	35	Pain in left loin, radiating to scrotum. Hæmaturia. Frequent micturition. Symptoms 1 year.	Jan. 3rd, 1892; left kidney.	Recovered.	Incision into convex border of kidney. No sinus. Weight of calculus, 18 gr.
1892 (P)	16	Female.	35	Attacks of pain and frequent micturition. Hæmaturia for 7 years. Pain in right side and occasionally in left.	July 13th, 1892; right kidney.	Recovered.	Calculus weighed 302 gr. No sinus.
1892 (P)	17	Female.	25	Pain for two months and suppression of urine from left kidney. In November, 1891, a calculus was removed from the right (pyonephrotic) kidney by another surgeon. A large abscess followed and this was succeeded by a sinus. The urine from right kidney was discharged through the loin by the old nephrotomy sinus.	Dec. 24th, 1892; left kidney.	Recovered.	Left kidney drawn on to loin and incised in three places. Twenty-two phosphatic calculi were removed. Weight of calculi, 96 gr. An abscess followed, but on Jan. 9th wound closed and was never afterwards reopened. All attempts to close sinus on the right side were followed by severe symptoms requiring sinus to be reopened. A canula was therefore at length permanently maintained on the right side.

[*Table I. continued on next page.*

TABLE I.—CASES OF NEPHROLITHOTOMY *(continued)*.

Year	No.	Sex.	Age.	Leading symptoms.	Date of operation.	Result.	Remarks.
1893 (P)	18	Male.	13	Pain in right side for 7 years. Albuminuria and occasional hæmaturia.	May 13th, 1893; right kidney.	Recovered.	Tuberculated heart-shaped stone removed from pelvis of kidney. Weight 33 gr. No sinus.
1893 (P)	19	Female.	35	Pain and tenderness in right renal region for 4 or 5 months. Pain on micturition, necessitating a vesico-vaginal fistula for 10 years.	May 14th, 1893; right kidney.	Recovered.	A small lozenge-shaped uric-acid calculus removed. No sinus. After operation all painful micturition disappeared and vesico-vaginal fistula was closed by operation. Weight of calculus, 4 gr.
1893 (P)	20	Male.	33	Had been operated upon in February, 1893, for a perinephric abscess on left side. This re-formed and was opened on June 10th, 1893. A sinus followed. In November, 1892, and at both the above-named dates there was marked anuria.	June 29th, 1893; left kidney.	Recovered.	Three calculi removed. The kidney was small and somewhat hydronephrotic. In this case an abdominal incision was made as well as the lumbar. Only a few ounces of urine passed by urethra till operation wound began to close. On July 11th 11 oz. were voided naturally and from this time the quantity gradually increased. Weight of calculi, 17 gr. No sinus remained.
1893	21	Male.	21	Pain in right loin for 1 year. Hæmaturia, albuminuria, and pyuria.	Sept. 27th, 1893; right kidney.	Recovered.	Incision made into the organ and a stone extracted. Weight of calculus, 40 gr. No sinus remained.
1894 (P)	22	Female.	35	Lumbar pain on left side. Pyuria with very high temperature and nervous agitation. Hard irregular swelling in right loin, to which no symptoms had been referred and which was not known by patient to exist.	May 17th, 1894 (1st operation); right kidney.	Recovered.	A large calculus removed, weighing 830 gr., which was closely enveloped by the dilated pelvis and upper end of ureter. Urinary sinus persisted. Subsequently nephrotomy was performed on both kidneys.
1894 (P)	23	Male.	49	Previous passage of many calculi—the first 20 years ago, the last in January, 1894. Pain in left loin. Pyuria and hæmaturia and also ova of bilharzia hæmatobia.	May 29th, 1894; left kidney.	Recovered.	An incision in the loin 9 in. long joined by a vertical incision 1¼ in. long. Incision into convex border of kidney and a uric-acid calculus, weighing 35½ gr., extracted from the lower fourth. No sinus.
1894	24	Female.	22	Pain and resistance in right loin for 1 year. Albuminuria, pyuria, and hæmaturia. Oxalic and uric acid crystals.	Aug. 20th, 1894; right kidney.	Recovered.	Incision into convex border and a calculus extracted weighing 5 gr. Incision in kidney closed with catgut sutures. No sinus.
1895	25	Male.	30	Pain in right loin for 4 years. Hæmaturia and albuminuria. Oxalate of lime crystals.	Jan. 2nd, 1895; right kidney.	Recovered.	Incision into pelvis and ureter. Stone impacted at entrance of ureter; removed through incision in renal pelvis. No sutures. No sinus. Weight of calculus, 6 gr.
1895	26	Male.	11	Pain in right loin. Hæmaturia and pyuria. Duration of symptoms 3 years.	Oct. 11th, 1895; right kidney.	Recovered.	Incision into pelvis of kidney, which was closed by silk sutures. Stone size of small plum-stone extracted. No sinus. Weight of calculus, 8 gr.
1896	27	Male.	20	Pain in left loin for 4 years. Occasional hæmaturia.	March 3rd, 1896; left kidney.	Recovered.	Incision into pelvis of kidney. Stone size of hazel nut extracted. No sinus. Weight of calculus, 25 gr.
1896 (P)	28	Female.	18	Pain in left loin. Hæmaturia. Symptoms since twelfth year of age.	March 15th, 1896; left kidney.	Recovered.	Calculus removed through the front of the renal pelvis. The incision was sutured. No sinus. Weight of calculus, 25 gr.
1896 (P)	29	Male.	58	Pain in left loin. Hæmaturia. Periodic attacks every 6 months for 8 years. During last 2 years attacks much more frequent. For several weeks preceding operation hæmaturia constant.	Aug. 1st, 1896; left kidney.	Recovered.	Incision into posterior aspect of renal pelvis. Oxalate of lime calculus removed weighing 41 gr. No sutures were used for the pelvis. No sinus.
1897	30	Male.	48	Pain in right loin for 40 years. Albuminuria, pyuria, and oxalate crystals.	July 28th, 1897; right kidney.	Recovered.	Incision into the anterior aspect of kidney and a stone removed from its lower part. No sinus. Weight of calculus, 147 gr.
1897	31	Female.	29	Pain in left loin for 16 years.	July 28th, 1897; left kidney.	Recovered.	Incision into pelvis and a stone extracted. The renal wound was sutured with 4 fine catgut sutures. No sinus. Weight of calculus, 35 gr.
1897	32	Female.	22	Pain and swelling in right loin for 6 months. Hæmaturia, pyuria, and albuminuria.	Nov. 22nd, 1897; right kidney.	Recovered.	Incision into posterior wall of pelvis and a friable, irregularly shaped stone was removed. Wound in pelvis was sutured. No sinus. Weight of calculus, 2 gr.
1897 (P)	33	Male.	44	Repeated attacks of pain and tenderness on left side for 16 years. Occasional hæmaturia. An abiding aching aggravated by exercise. No pus; no crystals in urine.	Dec. 18th, 1897; left kidney.	Recovered.	Calculus removed from upper end of ureter by an incision through posterior surface of pelvis. No sutures used, as the tissue of renal pelvis was very soft. No sinus remained. Weight of calculus, 17 gr.
1898	34	Female.	26	Pains in left loin for 2 years. Repeated attacks of left renal colic, accompanied by temporary complete suppression of urine, which lasted for 2 or 3 days at a time. There was enlargement of right kidney, which was also believed to contain a stone, but to which no symptoms were referred. During attacks of pain a swelling was felt in left renal region.	Jan. 26th, 1898; left kidney.	Recovered.	Kidney large and congested. An incision was made in the convex border and through it a stone weighing 11 gr. was extracted from the renal pelvis. Uninterrupted recovery. No sinus. To return for purpose of having right kidney explored.

A CASE OF LYMPHADENOMA INVOLVING THE STOMACH IN A CHILD AGED EIGHTEEN MONTHS COMPLICATED BY RICKETS AND CLOSELY SIMULATING LEUKÆMIA.

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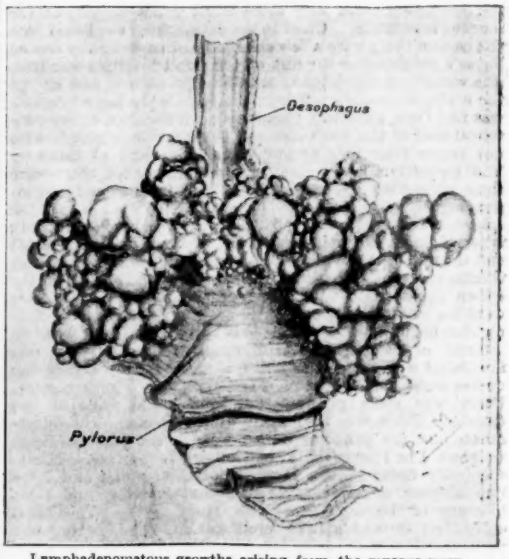
THE patient, a male infant, aged one and a half years, was admitted to St. George's Hospital on Feb. 14th, 1898, and died two days later. He was under the care of Dr. Cavafy, who has kindly allowed us to make use of the case. Two months previously the child had been operated upon for a (granulation?) polypus in the right ear and since then had been losing strength and colour. The mother said that the child had brought up blood. A week before admission spots were noticed on the skin which at the post-mortem examination were seen as scattered petechiæ. There was a tender swelling behind the right parotid, and the spleen was found to be much enlarged, but no abnormal signs were discovered in the lungs. The child was very anæmic, but did not complain or appear to suffer any pain except when the right side of his neck was examined, and died quietly from increasing asthenia two days after coming into the hospital.

Owing to the fact that we did not see the patient during life we were unable to make a complete examination of the blood—for instance, we have no data with regard to the absolute number of white and red cells. We were fortunate, however, in having several blood films prepared by Mr. S. Smith, the house physician of the case. An examination of these films showed that there was very considerable degeneration of the red cells and that this was accompanied by a large increase in the number of white cells. A differential count of 500 white cells gave the following figures: lymphocytes, 61·1 per cent.; polynuclear cells, 16·5 per cent.; eosinophile cells, 1·6 per cent.; and myelocytes, 20·8 per cent. During this count 94 normoblasts and 6 megaloblasts were noticed; many of these showed mitotic changes. There were no Charcot-Leyden crystals. The blood thus showed very marked anæmia, together with a marked increase in the number of lymphocytes—many of which were of the larger form—and a very large percentage of cells foreign to normal blood—namely, myelocytes.

At the necropsy the body was found to be markedly anæmic with scattered but not very numerous petechiæ. There was slight œdema of the legs. There were marked rickety curves of the tibiæ and enlargement of the wrists. There was a hard swelling in front of the sterno-mastoid muscle on the right side reaching up into the parotid region. On dissection this was found to be a packet of glands passing underneath the sterno-mastoid muscle. The glands appeared gelatinous from œdema and the fibrous tissue separating them seemed prominent and increased in amount. Microscopically, the packet of glands on the right side of the neck showed thickening and increase of their fibrous capsules; the normal arrangement of the glands was obscured and lost. There was a general slight increase of the fibrous tissue throughout the tissue of the gland with a number of oval connective tissue cells. The number of small lymphocytes was diminished but large lymphocytes were present in considerable quantities. These cells appeared to be the same as those described by many writers as endothelioid cells. The other accessible lymphatic glands in the body were examined but were not found to be enlarged. The anterior fontanelle was open, but not widely; the diploe and bones of the skull-cap were healthy. The membranes and sinuses were normal. The brain weighed 36 oz. and was healthy. Both membranæ tympana were perforated and the middle ears contained soft granulation tissue polypi and muco-pus. The sternum appeared to be normal on section. The ribs showed very marked rickety enlargement at their costo-chondral junctions, there being in several instances some backward displacement of the rib on the costal cartilage. At a distance of from 1½ in. to 2 in. from the costo-chondral junction several of the ribs showed periosteal nodes which on section invaded the medullary cavity and rather suggested a united fracture. But as the node was only on one side, the fracture, if there had been one, must have been a "greenstick." The rickety enlargement was very vascular and was in places excavated into loculi; reddish marrow extended some distance into the shafts of the ribs, in some as far as the periosteal nodes already referred to. There was no hæmorrhage under the periosteum or sign of scurvy rickets. Microscopically, besides marked evidence of rickets, the costo-chondral junction showed an excess of lymphocytic infiltration as compared with normal bones from a child of the same age. This lymphocytic infiltration was also present in the shafts of the ribs: this condition might be thought to resemble, but only in a very minor degree, the lymphadenomatosis of bone described by Weber.[1] The nodes on the ribs were composed of ossifying cartilage; under the node there was a transverse break on the underlying lamina of bone strongly suggesting that a partial fracture had occurred some time before death. The bones of the limbs were not examined. The thymus and thyroid glands were healthy. The pleuræ were normal. The lungs showed early broncho-pneumonia with small hæmorrhages into their substance. The bronchial and tracheal glands were healthy. There were petechiæ on the visceral pericardium. The cardiac valves were healthy. The myocardium was pale but there was no manifest fatty degeneration. The abdomen was distended from the presence of flatus in the intestines; but there was no ascites. The œsophagus was perfectly normal. The outside of the stomach near the lesser curvature showed a few plaques of white growth. The stomach contained some grumous fluid. Its mucous membrane presented a remarkable appearance (vide Fig. 1) from the presence of a number

FIG. 1.



Lymphadenomatous growths arising from the mucous membrane of the stomach. The only part not affected is the region around the pylorus.

of polypoid growths that were scattered all over the lining mucous membrane except for a distance of from 1 in. to 1½ in. around the pylorus. The growths were smooth, white, and not ulcerated. These were of varying size, the largest being equivalent to a small walnut. They were largest and most

[1] F. P. Weber: General Lymphadenomatosis of Bone, one form of Multiple Myeloma. Journal of Pathology and Bacteriology, January, 1898.

closely packed near the cardiac orifice, gradually diminishing as the pyloric region was approached. Microscopically the polypoid growths were composed of the mucous membrane thrown into folds and extensively infiltrated with large and small lymphocytes (vide Fig. 2). The submucous coat did not

FIG. 2.

Microphotograph of lymphadenoma of the stomach × 12 showing infiltration limited to the gastric mucosa and not invading submucosa.

contain any lymphocytes at all. This growth, which also contained some spindle-shaped connective tissue, was apparently derived by proliferation of the lymphoid tissue that is normally found on the mucosa. The tubular glands of the stomach were somewhat displaced by the growth but showed no proliferation or degeneration and were well preserved. The duodenum showed some vascular streaks from which the stomach was quite free. In the second and third parts of the duodenum there were some small white nodules on the mucous membrane. Close to the entrance of the ileum into the cæcum there were a few enlarged and superficially eroded Peyer's patches, but the rest of the small intestine was free. The vermiform appendix appeared to be natural and except for a single sessile growth in the rectum the large intestine was free from growth. There was no infiltration of the peritoneal coat of the intestines and the mesenteric glands were not larger than they normally are in a child of this age. The aortic lymphatic glands were normal, but there were some pigmented glands along the iliac arteries and accompanying the splenic artery at its entrance to the hilum of the spleen. The spleen weighed 8 oz. and was much enlarged; it rested on an extremely well-developed costo-colic ligament and the adjacent splenic flexure of the colon was collapsed as if from pressure. There was no capsulitis and on section the spleen appeared to be tough, reddish, and uniform. There were no manifest pigmentation, no enlargement of the Malpighian bodies, and no lardaceous reaction. There were no infarcts or hæmorrhages. Microscopically the pulp was inundated with large and small lymphocytes; the Malpighian bodies were small but had not undergone any fibrotic change. There was some pigmentation around the walls of the sinuses. There was no fibrosis of the spleen. The suprarenals and the pancreas were normal. The kidneys (each weighed 1 oz.) were pale but otherwise normal. Microscopically there were a few small foci of small and large lymphocytes, small lymphadenomatous growths, and some blocking of the capillaries with lymphocytes. The tubal epithelium showed a little proliferation. The bladder was normal. The testes were large but healthy. The liver was enlarged to a slight extent and on section appeared to be swollen and pale. There was a large white gland in the portal fissure, but there were no growths on the substance of the organ. The bile-ducts were pervious. The gall-bladder was almost empty. Microscopically there was a general excess of lymphocytes in the capillaries, so that the liver appeared to be in a state of early leukæmia. In addition there was in the portal spaces and outside the capillary vessels early lymphadenomatous growth composed of lymphocytes and young connective tissue-cells. There was no cirrhosis or fatty change.

Remarks.—Viewing the case in the first place from the standpoint of the blood examination alone the case would plainly have to be described as one of lieno-myelogenous leukæmia. The small percentage of eosinophile cells is unusual, but the majority of observers are agreed that the part played by eosinophile cells in leukæmia is unimportant. Some of the blood changes are undoubtedly due to the fact that the child was suffering from marked rickets. In this disease there is considerable anæmia, which is often accompanied by a lymphocytosis and a small (from 2 to 3 or less) percentage of myelocytes. In this patient, however, the large percentage of myelocytes was far in excess of anything that has been found in any other disease than leukæmia. Again, a part of the lymphocytosis and the small number of polynuclear cells might readily be accounted for by the age of the child, so that it is fair to regard the excess of small lymphocytes as due to some other cause than leukæmia. In fact, our knowledge of the changes which occur in the blood in children is not sufficiently accurate for us to form any definite conclusions on a blood examination alone in such a case as this. It might be suggested that the case should be classified under what von Jaksch[2] and others have called "anæmia infantum pseudoleukæmica." It is very doubtful, however, whether this name can be fairly given to any class of disease. The vast majority of cases recorded under this heading have not been examined in a sufficiently thorough manner in the matter of a differential count of the white cells for us to say under what classification they should be put. Further, very different types are given by different observers. We agree with von Limbeck[3] that no such disease exists and we believe that Cabot[4] is right in suggesting that the cases which have been recorded as cases of "anæmia infantum pseudoleukæmica" are in reality either cases of pernicious anæmia, secondary anæmia without leucocytosis, Hodgkin's disease, lymphatic leukæmia, or possibly cases of spleno-myelogenous leukæmia. It is further possible, as Cabot suggests, that there may be cases which are intermediate between leukæmia and pernicious anæmia. Turning to the point of view of the morbid anatomy the case appears to be a remarkable example of lymphadenoma. The growth, as is so often the case, apparently began in the cervical glands, and it is probable that the poison, whatever it may be, which gives rise to lymphadenoma gained entrance to the lymphatic system through the abraded surface in the right tympanum. Starting here, the growth had become general and, a noteworthy feature in the case, chiefly in the alimentary canal and especially in the stomach. The spleen was much enlarged and there was some infiltration of the ribs. These latter lesions, as will be seen, are of great interest. Now though lymphadenoma, unlike leukæmia, is far from rare in young children, it appears that lymphadenomatous growths from the gastric mucous membrane have not been previously described at so young an age. The youngest case which Pitt[5] recorded was twenty-four years old and the average of his 5 cases was 44·8 years. The morbid appearances in our case closely resemble those in Pitt's own patient, who was forty-eight years old. In both the mucous membrane of the stomach around the pylorus, in the antrum pylori, was free from lymphadenomatous growths. This is very striking, especially in Pitt's case, when it is considered in the light of the anatomical distribution of lymphoid tissue in the mucous membrane of the stomach. From a number of observations Soltau Fenwick[6] concluded that in "infancy and childhood these collections of lymphoid tissue are fairly developed and profusely scattered over the whole surface of the organ, but are always particularly large and distinct in the pyloric region near the lesser curvature. After the age of forty it is often impossible to demonstrate their presence in the cardiac two-thirds of the stomach without the use of the microscope, and in the pyloric region they are much reduced in numbers and appear small and shrunken." The growths have therefore in both cases avoided the parts where the lymphoid follicles are normally best developed, and in Pitt's case were present where the lymphoid tissue is usually atrophied at that age. It is plain, then, that although the disease appears from the morbid anatomy

[2] Von Jaksch: Wiener Klinische Wochenschrift, 1889, Nos. 22 and 23.
[3] Von Limbeck: Grundriss einer Klinischen Pathologie des Blutes, p. 368.
[4] Cabot: Clinical Examination of the Blood.
[5] Pitt: Transactions of the Pathological Society of London, vol. xl., p. 80.
[6] Soltau Fenwick: Journal of Pathology and Bacteriology, vol. i., p. 424.

standpoint to be lymphadenoma, yet it presents some unusual features in such points as the distribution of the disease. So far we find that the blood examination points to a diagnosis of lieno-myelogenous leukæmia and that post-mortem evidence gives support to the diagnosis of lymph-adenoma. If the disease were leukæmia throughout there ought to have been much more marked leukæmic infiltration of the liver and the kidneys than was present, for it is probable that if the large polypoid growths in the stomach were due to lymphocytic infiltration occurring in lymphatic leukæmia the other organs should be affected to a corresponding degree. On the other hand, the examination of the sections of the liver and kidney showed that the capillaries were in places filled with lymphocytes, thus supporting the diagnosis of early leukæmia. Against leukæmia, however, we have to face the fact that only two cases of genuine leukæmia in infancy have been recorded,[7] and that of these only one was of the lieno-myelogenous type. In this case there was a percentage of 21 myelocytes and this was associated with a large increase in the number of white cells and an abundance of nucleated red cells. It is possible to regard the case as primarily one of Hodgkin's disease which in its later stages had taken on the characteristics of leukæmia. There is no doubt that cases which clinically are primarily cases of Hodgkin's disease do before death develop the blood characteristics of leukæmia. It may be that towards the end of a case of lymphadenoma we get in some instances what may be called a lymphadenoma of the blood—that is to say, the process in the glands becomes acute and there is secondary invasion into the blood, getting in this way the appearance of lymphatic leukæmia, just as in sarcoma a secondary invasion occurs by means of the blood. This secondary invasion in sarcoma is, it may be noted in passing, often associated with what appears to be a lymphocytosis. This occurrence thus becomes very interesting, not only from the point of view of the relationship between lymphadenoma and leukæmia, in which the lymphatic glands and the leucocytes are respectively affected, but as bearing on the relationship of lymphadenoma to sarcomatous growth. The close connexion of these diseases is made more evident by the result of Muir's[7] careful study of a series of leukæmic cases; he comes to the conclusion that the changes in both forms of leukæmia are due to the proliferation of a certain cell—possibly owing to the action of some irritant—in a manner analogous to what is found in certain tumours, such as sarcomata. In this particular case the morbid appearances suggest Hodgkin's disease, the blood examination points to a mixed leukæmia, and in view of the above it might be held that the case was primarily Hodgkin's disease and secondarily had taken on the blood characteristics of lieno-myelogenous leukæmia. Against this, however, we know in the first place that strange variations occur in the blood of children without any very apparent cause, and further although the blood examination is in itself very much in favour of lieno-myelogenous leukæmia, yet considering the age of the child it does not justify the conclusion that the case was leukæmia. This conclusion is very much strengthened by the fact that there appears to be no record of any case of lymphadenoma which went on to lieno-myelogenous leukæmia, although cases of Hodgkin's disease indistinguishable in the late stages from cases of lymphatic leukæmia are common. It would seem best to regard the case as one of aberrant lymphadenoma in which changes simulating lieno-myelogenous leukæmia had been induced by a marked condition of rickets. As has already been pointed out, the large amount of lymphocytosis and the marked anæmia with the presence of nucleated red cells is what is found in rickets. Further, in rickets there is apparently no increase in the number of eosinophile cells and this would be in keeping with the small number—practically normal—of eosinophile cells present in this particular case. Again, the age of the child might account for the relatively small number of polynuclear cells present. So far then we have accounted for all the blood changes with the exception of the presence of the abnormal cells or myelocytes. A very small percentage of these cells is common in rickets. It is probable that the infiltration of the marrow of the ribs by lymphadenomatous material which occurred in this case may have acted in some way in conjunction with the marked rickety condition, either as an irritant or otherwise, so that it caused a more or less intense proliferation of the cells which are found in bone marrow but are foreign to the blood—namely, the myelocytes. Viewed in this light it seems best from post-mortem evidence to regard the case as one of lymphadenoma complicated by rickets, especially as the blood changes can be satisfactorily explained by this combination of diseases.

For the drawing of the stomach and the micro-photograph we are indebted to Mr. P. L. Mummery, B.A., and Mr. Harold Spitta, senior students at St. George's Hospital.

[7] Morse: Boston Medical and Surgical Journal, 1894. Muir: Journal of Pathology and Bacteriology, vol. i., p. 123.

A METHOD OF EXPOSING AND OPERATING ON THE KIDNEY WITHOUT DIVISION OF MUSCLES, VESSELS, OR NERVES.[1]

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MY much lamented friend, the late Greig Smith, used to insist on the importance of opening the abdomen in the course of the muscular fibres as much as possible so as to avoid the weakness that is apt to follow on division of muscle, but I can find no evidence in his writings, nor did I gather in my many conversations with him, that he had conceived the idea of exploring the kidney on this principle. Dr. McBurney's method of exposing the vermiform appendix, which I have employed on numerous occasions with great satisfaction, suggested to my mind the possibility of exposing the kidney in a similar manner, and it was not until I had performed a number of operations by the method I am about to describe that my attention was drawn to a paper by Dr. Abbé in the Transactions of the New York Surgical Society, in which he describes a case of nephrectomy performed on the same principle. Seeing that the operation is one which from ample experience I have found of great utility in all operations on the kidney I have no hesitation in describing it and recommending it to the notice of other surgeons. The accompanying diagram, which was drawn for me by my friend

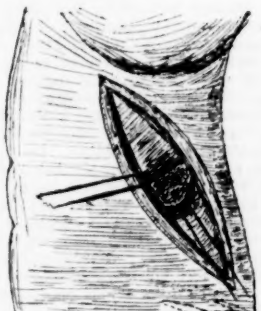

Diagram of incision, showing splitting and retraction of fibres of the external oblique muscle and also of internal oblique and transversalis.

Dr. F. Gairdner, who has assisted me in several of these operations, shows at a glance the principles on which the operation is based. The incision beginning to the inner side of the anterior superior spine of the ilium is carried backwards obliquely towards the tip of the last rib. The fibres of the external oblique and its aponeurosis are then split and retracted, exposing the internal oblique muscle, the muscular fasciculi of which are split in a line between the ninth costal cartilage and the posterior superior spine of the ilium, in which position they are longer than in front of or behind that line. When the fingers are pushed through the internal oblique to split it the fibres of the transversalis are pierced and can be retracted along with the oblique muscle. A

[1] A paper read before the Leeds and West Riding Medico-Chirurgical Society on April 22nd, 1898.

diamond-shaped space is thus formed, at the bottom of which is seen the transversalis fascia, which is then incised, exposing the peri-renal fat, and on pushing the fingers through this the kidney is easily reached in whatever position it may lie. If needful the whole hand may be introduced into the peri-renal space and the kidney can be grasped and freely manipulated, the retractors for the moment being withdrawn. If the vessels are moderately long, and in all cases of moveable kidney, the organ may be brought through the wound and explored by incision or by needling or it may be examined by the selenium screen and the Roentgen rays. Should a calculus be found it can be extracted and the wound sutured before the organ is returned, as in the following cases reported for me by my house surgeon, Mr. Dobson.

CASE 1.—A woman, aged sixty-nine years, had suffered from attacks of pain in the left lumbar region for several years and from acute continuous pain for the last three weeks, with pyuria, vomiting, and constitutional disturbance. A tumour could be felt in the renal region, tender, moveable, and dull on percussion, the dull area being crossed by a resonant band. On Feb. 11th, 1898, the operation as described above was performed and four stones were removed from the dilated kidney, together with a quantity of pus. Drainage was effected through a stab wound in the loin and the original wound was closed. The wound healed by first intention and the tube was removed in a week. She was made an out-patient on March 1st and was shown at the clinical meeting of this society on March 4th.

CASE 2.—A woman, aged sixty years, had passed renal calculi six and three years previously and for eight weeks before I saw her was feeble and ill, suffering from pyuria with bladder irritability. The symptoms were referred altogether to the bladder, but the left kidney was enlarged and tender. On April 11th I exposed the kidney by splitting the muscle and brought the kidney out of the wound. It was sacculated and contained purulent urine, but the ureter was free from obstruction. An oxalate stone with sharp projections was excavated from the top of one of the calyces through a free incision along the dorsum of the kidney, bleeding being arrested by compressing the renal artery. The wound in the kidney was then sutured by catgut stitches passed deeply, after which the kidney was returned and a drainage-tube passed down to the neighbourhood of the renal wound in case of leakage. The tube was removed on the third day, when the rest of the wound was found to be healed. The bladder irritability has subsided and the patient so far as the surgical condition is concerned is progressing satisfactorily though she is still very weak.

CASE 3.—A woman, aged thirty-one years, was admitted to the infirmary with a three years' history of attacks of pain in the right lumbar region radiating to the thigh and across the abdomen. She had had hæmaturia on several occasions. During the last few months the attacks had been very severe with vomiting and collapse. On April 21st, 1898, the kidney was exposed by splitting the muscles and was drawn through the wound, when a calculus was felt in the pelvis of the kidney which was exposed on its posterior aspect. The stone, which weighed 18 grains, was of about the size of a wren's egg and after its removal the wound in the pelvis was sutured by catgut, a drainage-tube being inserted into the peri-renal space. The patient has thus far progressed satisfactorily. Should it be found necessary to drain the kidney or its pelvis it is easy to make a stab wound through the loin and to pass a tube through that into the wound in the kidney, as in the following case.

CASE 4.—I was asked by Mr. Roberts of Knayton to see a woman, aged thirty-five years, suffering from a tender swelling in the right renal region, but without any marked urinary symptoms except a little pus and albumin in the urine. The symptoms had come on after a period of gradual failure of health and had been acute for eight weeks. When I saw her the temperature was 103° F. and the pulse was rapid and feeble. She was brought to a surgical home and the kidney was exposed by splitting the muscles. Offensive pus was found round the kidney, the kidney itself being swollen and containing pus. The kidney was drained by a tube passing through the loin and the upper wound was sutured. Except where the tube was the wound healed by first intention and at the end of a fortnight, the discharge having ceased, the tube was left out. She returned home on the twenty-first day and has progressed satisfactorily since. Should no disease be found beyond preternatural mobility sutures can be passed through the kidney substance when it is exposed, and then, on returning it, they can be passed through the tissues in the loin so as to anchor it securely as in the following case.

CASE 5.—A woman was sent to me by Mr. Reynolds of York with a very moveable left kidney producing all the symptoms of calculus. The pain was paroxysmal and was followed by albuminuria, which passed off between the attacks. The kidney was exposed and brought out of the wound, but a thorough exploration of it and the ureter revealed no stone. Sutures were passed through the kidney substance and then the kidney was returned and the stitches made to transfix the tissues in the post-renal region and to fix the kidney there. Healing occurred *per primam* and she returned home within the month.

Should no calculus be found and no disease involving further operation on the kidney the ureter can be explored even to its termination in the pelvis by an extension of the opening downwards and by means of a search light. When the peritoneum is well retracted the tube may be seen along its whole course, as in the following case.

CASE 6.—A man, aged thirty-nine years, was admitted to the Leeds Infirmary in October, 1897. He had been subject to attacks of pain in the loin for four years radiating along the course of the genito-crural nerve. There were irritability of the bladder, hæmaturia, &c., so that all who saw him suspected stone in the left kidney. The kidney was palpated and explored and the ureter was examined along its whole course, but without any stone being found. In this case, after exposing the kidney, the lower fibres of the internal oblique were divided to the extent of about three inches, in order to give more room to see the vesical end of the ureter. He was made an out-patient on Nov. 30th and has remained well and free from his attacks.

Cases 7, 8, and 9 afford other examples of negative exploration.

CASE 7.—The patient, aged thirty-four years, had had radiating renal pain for five years, hæmaturia, &c. On Jan. 20th, 1898, exploration of the kidney and ureter by an anterior oblique incision was performed. The result was negative as to calculus, but up to the present relief to all the symptoms. He was made an out-patient on Feb. 9th.

CASE 8.—The patient, aged thirty-six years, had had pain for six weeks in the left lumbar region, coming on in attacks radiating down the thigh and across the abdomen. There was pain on percussion over the kidney and the patient was said to have had hæmaturia. On Jan. 27th, 1898, an anterior oblique incision was made and the kidney and ureter were explored. The result was negative as to stone. She was made an out-patient on Feb. 26th.

CASE 9.—The patient, aged twenty-four years, had had renal pain, hæmaturia, &c., for fourteen months. On March 12th, 1898, exploration by an anterior oblique incision and splitting of the muscles was performed. The result was negative as to stone, but there was no return of pain. He was made an out-patient on March 22nd.

If the disease prove too extensive for simple nephrotomy it is quite easy to ligature the pedicle and perform complete nephrectomy, as in the following case, which I saw early last year.

CASE 10.—The patient was a woman, aged fifty years. She was suffering from hæmaturia with enlargement of the right kidney, which on exposure proved to be extensively invaded by malignant disease. The kidney was easily drawn through the wound and removed, recovery being uneventful.

In case the disease of the kidney is only partial the complete exposure enables a conservative operation to be done, as in the following example of partial nephrectomy.

CASE 11.—A woman, aged fifty-eight years, was sent to me by Mr. Wilson of Kirkby Overblow for tumour below the right costal margin accompanied by marked loss of flesh and great pain. Exploration revealed a tumour of the upper end of the kidney which was removed by excising a wedge-shaped piece of the upper end of the kidney including the tumour; bleeding, which was very free, was easily arrested temporarily by compressing the renal vessels and the kidney being outside the wound offered no difficulty to manipulation. On bringing together the V-shaped aperture by catgut sutures passed deeply, bleeding was completely arrested, and although a drainage tube was inserted as a precaution it was removed on the second day. The wound healed by first intention and the patient rapidly regained her flesh and strength and is now well.

After all necessary manipulations on the kidney have been

effected, the kidney, if not removed, is replaced, or if not disturbed from its bed is left *in situ*. The cavity is then sponged out and on withdrawing the retractors the muscles at once fall together and may if thought desirable be sutured with two or three interrupted catgut sutures, the skin incision being brought together by interrupted silkworm gut sutures. As a rule, not a single ligature is required, as there is no bleeding.

The advantages of this method of exploring the kidney are obvious. 1. There is no division of muscle and therefore no weakening of the abdominal wall immediate or remote. 2. No vessels are divided, thus not only saving time but rendering healing *per primam* more likely. 3. No nerves are severed and therefore paralysis of the rectus and other muscles is avoided. 4. The operation is done with the patient lying on the back, to the great convenience of the anæsthetist, the operator and his assistants, and to the manifest advantage of the patient, who is saved much unnecessary disturbance. 5. The great saving of time as well as the diminution of hæmorrhage means lessening of shock, thus rendering operation feasible when it otherwise might be questionable. 6. It is an important fact that diagnosis in kidney cases, especially in renal calculus, is by no means perfect, and if it can be proved that an exploration of the kidney can be done quickly with little or no danger and without any subsequent weakness being left, the physician will be less loth to permit and the surgeon to perform an exploratory operation after all other means have been fruitlessly tried. 7. Lastly, after such an operation convalescence is materially shortened as the patient may be safely allowed to be up at the end of the second week or even earlier, since there is no fear of the wound giving way.

I may take this opportunity of saying that wherever I can when operating away from the middle line of the abdomen I make use of the principle of splitting instead of dividing muscles—for instance, in gastrostomy, in inguinal colotomy, in typhlotomy, sometimes in cholecystotomy, and nearly always in removal of the vermiform appendix. I would also point out that if it be found necessary to extend the opening—for instance, in case of operation on the ureter—deeply in the pelvis it is easily accomplished by departing slightly from the principle here advocated and dividing the deep plane of fibres and further splitting the external oblique towards Poupart's ligament. The internal oblique will then require suturing to bring together the divided edges. In this way the ureter, even to its entrance to the bladder, may be fully exposed to sight as well as touch, as in a case which was witnessed by my colleagues, Mr. Teale and Mr. Ward, who will, I feel sure, bear me out in my statement as to the efficiency of this method of exploration. I could relate a greater number of cases on which I have operated, but I think that those I have given will be sufficient to serve as examples.

Leeds.

PUERPERAL ECLAMPSIA.[1]

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PUERPERAL eclampsia is now understood to mean convulsions with loss of consciousness unconnected with gross cerebral or spinal lesions in parturient women. The frequency of its occurrence is variously stated by writers, but in all probability about once in 260 labours[2] is the usual proportion. With regard to the period at which convulsions come on, the greater number occur before labour commences, then in order of frequency during, and, finally, after labour.[3] All statistics do not show this; but it must be remembered that appearances are sometimes fallacious, the onset of the convulsions being so closely followed by labour that the two phenomena have been supposed to be synchronous. Cases have been recorded at all periods of pregnancy from twelve days upwards; by far the greater number occur between the seventh and eighth months. Premonitory signs usually are present, but often are not taken much notice of. The commonest are headache, disturbances of vision, flashes of light before the eyes, amblyopia or even blindness, ringing in the ears, dyspnœa, tingling and numbness of the limbs, and, a very important sign, epigastric pain very similar to the pain complained of before diabetic coma supervenes. Occasionally diminution, steady and gradual, in the amount of urea eliminated by the kidneys has been noted and this has been used as an argument by some for the routine examination of the urine from time to time in parturient women, especially in primiparæ.

There is nothing resembling the aura of epilepsy in these cases. The phenomena resemble those of true epilepsy, but there is no epileptic cry. The tonic stage is very short, lasting only from half to one second, and is rapidly succeeded by the clonic with its usual stertor, jerking of muscles, and irregular respiration. This stage lasts for a minute as a rule, but may be prolonged to five minutes. Coma of variable duration succeeds the clonic stage, and then the patient recovers. On the other hand, consciousness may not be recovered before a second convulsion begins, this perhaps to be followed by others, even as many as 100 convulsions having been recorded in one patient. The temperature generally rises with each attack; this is said to constitute a differential diagnosis between eclampsia and uræmia from Bright's disease, in which the temperature usually but not invariably falls.

Eclampsia is always associated with albuminuria. I am aware that statements have been made to the contrary, but I feel sure that albuminuria will always be found at least just before and during the attack, though the next day, if convulsions have ceased, it may also have disappeared. In all the cases of eclampsia in the Guy's Hospital Lying-in Charity in which the urine was examined during the forty years up to 1875 albumin was only absent in two,[4] and in one of these the convulsions were due to meningitis; in the other they came on after severe post-partum hæmorrhage in a girl who had been seduced. It must be borne in mind that all parturient albuminurics do not get eclampsia; indeed, it is exceedingly rare to see eclampsia follow on the chronic albuminuria of pregnancy, and as a general rule a patient with dropsy and albuminuria during pregnancy may be confidently told that she will not get eclampsia. The urine may be scanty or even suppressed at the onset of the convulsions. The uterus is usually excited to contract but does not share in the irregular muscular contractions, though Braxton Hicks stated that it may become tetanic. In about 50 per cent. of the cases the fœtus dies before delivery, either because labour terminates before the fœtus is viable, or the fœtus is poisoned by the same cause which produces the eclampsia, or is asphyxiated on account of deficient oxygenation of the blood or separation of the placenta by hæmorrhages.

Terminations.—Complete recovery may occur without special treatment if delivery is completed soon enough; on the other hand, death may occur in spite of treatment from any of the following causes: acute toxæmia leading to heart failure; gradual asphyxia due to accumulation of secretions in the bronchi; pneumonia; puerperal sepsis due to infection during the hurried treatment often adopted. The albuminuria generally disappears quickly in cases which recover, but not uncommonly grave renal disease persists after the attack.

Diagnosis has to be made from true epilepsy which is not accompanied by albuminuria, has not the same prodromata, is not associated with a rise of temperature, and, as a rule, has a definite history of previous attacks; from meningitis which is accompanied by vomiting, optic neuritis, opisthotonos, and rise of temperature before the convulsions; and from hysteria which is not accompanied by albuminuria, never by incontinence of urine or fæces, in which unconsciousness is rarely absolute, and in which there is no rise of temperature, and the movements of which are very irregular and do not as a rule in the least resemble epilepsy.

Prognosis is most difficult in those cases in which the fits begin before labour; but even here, if the number of fits is less than fifteen, the coma not very profound between the fits, the pulse not too frequent or the temperature not very high, and, above all, rapid and safe delivery is possible, the prognosis is

[1] A paper read before the Æsculapian Society on Dec. 3rd, 1897.
[2] Vinay: Traité des Maladies de la Grossesse, Paris, 1894.
[3] Herman: Transactions of the Obstetrical Society of London, 1892.
[4] Galabin's Midwifery.

generally fairly good. According to Duhrssen[5] in 93 per cent. of the cases the fits cease after delivery. Deep coma, constantly recurring convulsions, slowly progressing labour, especially combined with anæmia and a bad pulse, always put a very serious aspect on the case.

Post-mortem appearances are very inconsistent and apparently there is no known lesion constantly associated with eclampsia. In a large proportion of cases the kidneys are affected; a parenchymatous nephritis is found sometimes associated with very acute congestion. In some cases the brain shows minute hæmorrhages and anæmia, rarely hyperæmia. The liver is sometimes markedly pathological, small hæmorrhages, areas of necrosis, and sometimes even complete disorganisation of structure being present. In all probability these changes are secondary and stand in no way in causal relation to the disease.

Ætiology.—The causation may be classified under three heads: predisposing causes, essential causes, and exciting causes. Among the predisposing causes primiparity (the disease is seven times more common in primigravidæ than in multigravidæ) and twin pregnancies probably act in the same way by giving a greater tendency to albuminuria and renal inadequacy due to increased work thrown on the kidney. Heredity as a cause is very doubtful. Then there are the mental disturbance and increased irritability of the nerve centres in pregnancy. The essential causes must be carefully distinguished from the chronic conditions which produce albuminuria, for, as has been shown, chronic albuminuria in pregnancy, whatever its cause, is very unlikely to give rise to eclampsia. The older theories, such as the cerebral anæmia theory of Traube and Rosenstein, the cerebro-spinal congestion theory, the uræmic theory, and countless others are now given up. No one now contends that uræmia is due to retention of urea in the blood, for large quantities of urea may be injected into the blood-stream without producing convulsions. A microbian theory has, of course, been suggested, but no microbe has been isolated and in any case the microbe could only be proved to be the source of the toxins which are now generally accepted as the cause. The toxæmic theory suggests that the symptoms are due to the retention in the blood of poisons usually eliminated by the kidneys. The clinical picture lends colour to this theory, consisting as it does of prodromata, action of the nerve centres, and inflammatory sequelæ. The analogy of such diseases as diphtheria and typhoid fever also supports this view. What is the source of the toxic agents? It has been proved that normal urine contains several toxic principles and Bouchard[6] has shown that in eclampsia these are decreased in the urine and that the toxicity of the blood is increased. If the blood becomes supersaturated with these principles owing to renal incompetence (not necessarily inflammatory but simply physiological) intoxication results and eclampsia appears. The poisons may be maternal but from what source we do not know. They may also be fœtal, for we know certainly that in some cases when the fœtus dies the eclampsia ceases. The important point to realise is that these toxic principles are in all probability physiological products of normal organs, and as such their origin may be in the muscular system, in the viscera, or anywhere in fact where active metabolism is going on. The exciting causes may be very slight. Given the supersaturation of the blood with toxic principles, a slight stimulus such as a uterine contraction, a mental fright, the passing of a catheter or the giving of a rectal enema, or even the making of a vaginal examination, may be sufficient to upset the balance.

Treatment is based on the assumption of the toxæmic theory above described and may be divided into two categories: first, the treatment of the cause of the disease and, secondly, the treatment of the convulsions themselves. The first, of course, is the more important and briefly put consists in aiding nature as far as possible to eliminate the poisonous toxic principles from the body. The usual avenues for the elimination of excretions are the skin, the kidneys, and the bowels. We can stimulate either of these to increased action, and if the kidneys are inadequate the extra action of the other two may be made to compensate somewhat. To stimulate the skin and to promote diaphoresis we use the hot bath at 100° F., or the hot vapour or air bath, or the hot wet pack. I need not go into the questions of how to give these. I do not believe in drugs to induce sweating, and especially *not* pilocarpine. It is a dangerous drug to use in these cases on account of its depressing action on the heart and the danger of asphyxia from the large amount of bronchial mucus it produces. Drugs by the mouth of course are contra-indicated because the patient is usually unconscious. As the urine is unusually scanty, and the kidneys are probably deeply congested active measures must be taken to relieve these. An old-fashioned but very efficacious remedy is dry cupping to the loins, followed by linseed meal poultices. Infusion of salt water (1 dr. to the pint) into the veins or subcutaneous tissue is very useful in promoting diuresis. In many of these cases the circulation is at very high tension as shown by plethora and the very hard pulse; this condition by itself greatly embarrasses the action of the kidney (or possibly the inadequate kidney really produces it) and I am confident that for such a condition there is nothing to compare with bleeding. It acts by relieving the circulation and lowering the tension, by diminishing the congestion of the kidneys, and very probably also by removing some of the toxic principles from the blood. The quantity of blood removed should not exceed 20 oz. I have twice used bleeding in typical cases and both times the result was all that could be desired, the pulse became slower and the tension was relieved, and the fits stopped entirely and did not recur Bleeding must not be employed when the patient is anæmic or when the circulation is feeble. The time-honoured treatment for the bowels is to give two minims of croton oil, but I am bound to say that this does not always have any effect. Any drug which can be given to an unconscious patient and which will produce a liquid motion may be used and will help to relieve the circulation. With regard to the treatment of the convulsions the patient must be prevented from hurting herself through falling out of bed or biting her tongue. Chloroform must be given by inhalation and light anæsthesia may be continued for hours, increasing the dose if a fit seems to be coming on. As an alternative to chloroform morphia has been largely used of late years at the Rotunda Hospital, Dublin. It is given hypodermically in full doses until the full effect is reached and it is claimed that the results have been better since chloroform has been abolished. There need be no fear of giving morphia on account of the renal complication. It does not seem to matter whether the kidneys are sound or not; indeed, morphia is largely given nowadays in chronic Bright's disease. Besides these bromide of potassium is generally given with or without chloral hydrate by the rectum—from 30 or 60 gr. of the former, 30 gr. of the latter—but very little good could be expected from them alone. My own experience of these drugs is limited to chloroform, but my cases are too few and too uniformly happy in their ending to be able to say much about it.

To my mind there can be no doubt that labour should be induced where eclampsia precedes. I am convinced that nothing gives the mother a better chance of recovery than a rapid but safe and deliberate delivery. No forced delivery should be attempted, the greatest care must be taken not to produce tears, and above all the strictest antiseptic precautions must be taken; for a patient recovering from eclampsia is in the worst possible condition for withstanding septic microbes and therefore is more prone to septicæmia than other presumably less worn out patients. Nothing could be more miserable than to pull a patient through an attack of eclampsia only to see her succumb to the ubiquitous streptococcus. The greatest success in these cases will be with him who carries out all these methods of treatment, not hesitating to pile up one upon the other until the disease is checked.

As a routine treatment for a given case I would suggest the following. Give chloroform or keep the patient under morphia and also give the bromide and chloral *per rectum*. Protect the patient from injury. Induce labour. Bleed if the pulse is hard and the patient is plethoric. Give a hot wet pack or bath. Dry-cup the loins and then put on linseed meal poultices. Give two minims of croton oil on a bread crumb placed on the tongue. In a large proportion of cases a good result will be obtained if treated in this manner. Even with all this treatment, however, there are, unfortunately, cases which do terminate fatally; but as far as we are concerned we cannot recognise them beforehand and so we must not omit one item of the treatment.

St. Thomas's-street, S.E.

[5] Archiv für Gynäkologie, 1892.
[6] Leçons sur les Auto-intoxications dans les Maladies.

A RECENT SERIES OF 100 OPERATIONS FOR STONE IN THE BLADDER, WITH SOME PRACTICAL REMARKS THEREON.[1]

BY P. J. FREYER, M.A., M.D., M.CH.,
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IT has now fallen to my lot to have performed 912 operations for stone in the bladder by all methods—viz., 249 perineal lithotomies, 7 suprapubic lithotomies, 1 vaginal lithotomy, 3 removals of stone from the female bladder by rapid dilatation of the urethra, and 652 litholapaxies. Full particulars of the great majority of these operations, as to age of patients, weight of calculus, mortality, &c., have appeared in papers published by me in the various medical journals during the past sixteen years and in the recent edition of my work "The Modern Treatment of Stone by Litholapaxy."[2] It is, however, to my latest series of 100 operations for stone in the bladder that I propose inviting attention. I may at once say that these operations were one and all successful. I propose giving some brief statistics of these operations, describing the methods by which the results were obtained, and, by reference to important individual cases, directing attention to some practical features in the modern operation for stone.

I have now for several years practically abandoned all other methods of dealing with stone in the bladder in favour of Bigelow's operation. The force of this statement will be brought home when I say that amongst this series of 100 operations there were only 2 lithotomies, the remaining 98 cases having been dealt with by litholapaxy. In one of these two cutting operations—a case in private practice—the suprapubic method was adopted for the removal of these two calculi contained in this cystic tumour which projected into the bladder and presented on cystoscopic examination the appearance of a fibro-papilloma. Details of the case, which I believe to be unique in the annals of surgery, were placed before the Royal Medical and Chirurgical Society in November last and are published in the Transactions of that society. The other case was that of a patient in St. Peter's Hospital, who, in addition to stone, suffered from severe stricture of the urethra with perineal fistulæ. Median lithotomy was performed, the stricture at the same time being successfully dealt with. Amongst the remaining 98 cases operated on by litholapaxy there were 94 males and 4 females; 68 were adults and 30 were male children or lads under seventeen years of age.

Litholapaxy, as you are aware, consists in the rapid crushing of the stone and the complete removal of the fragments at one sitting. Crushing of calculi at numerous "sittings," or lithotrity, had been more or less in vogue from the early part of the century, finding its ablest advocates in Civiale in France and Sir Henry Thompson in this country; but the essential part of the modern, or Bigelow's, operation consists in the complete removal of the fragments at one sitting. Undoubtedly one of the most, if not the most, essential elements of success in this operation is the employment of proper instruments. Time will not permit of my going into that interesting subject—the history of the development of these instruments. I will therefore confine myself to a brief description of the instruments employed in my own practice at the present time.

The lithotrite shown in Fig. 1 was made for me in 1886 by Weiss and it is the model on which all my lithotrites have since been constructed. It contains the handle and locking action of Bigelow with fully fenestrated blades instead of a non-fenestrated female blade as originally used by Bigelow. The ball handle affords a much firmer grip to the hand than the old-fashioned wheel—a grip which is essential when dealing with large and hard calculi. The locking action is of the simplest character, the instrument being locked and unlocked by a quarter turn of the cap to the right or left by the right hand, the left hand being free to grasp the female blade and to hold it steady in the bladder during the various manipulations. The female blade is fully fenestrated, smooth, and bevelled on the inner aspect of the slot, so that it is almost impossible to catch the mucous membrane. I use none but fully fenestrated lithotrites in my practice now, regarding the use of any other kind—whether non-fenestrated or partially fenestrated—as dangerous, owing to the liability which exists with them of débris getting impacted in their jaws—an accident which cannot occur with a fully-fenestrated lithotrite when properly used. To cope with calculi of all sizes and consistencies in patients of all ages a series of lithotrites varying from No. 4½ to No. 18 of the English scale should be at hand. Bigelow's original aspirator, though efficient, was both complicated and cumbersome and has been modified from time to time by himself and other surgeons. This form of Bigelow's aspirator, simplified by myself and others, I worked with for years and found thoroughly efficient. I have still further simplified this by dispensing with the tap above the rubber bulb, which is quite unnecessary, as the apparatus can be easily filled by immersing it in a basin of water. The essential requirements, to my mind, in a perfect aspirator are: (1) that the apparatus be light and handy, so that when attached to the cannula in the bladder it can be moved about freely in any direction by one hand; (2) that the distance between the rubber bulb and the bladder be the shortest possible and the intervening course of the fluid as nearly straight as possible; (3) that the rubber be strong and pliant, so as to give sufficient suction power; and (4) that fragments once entering the receiver cannot return to the bladder. These attributes my new aspirator (Fig. 2) possesses. I have now worked with it for more than two years and have found it thoroughly efficient in all respects.

FIG. 1.

Bigelow's lithotrite as altered by author.

FIG. 2.

The cannulæ vary in size from No. 6 to No. 18 of the English scale, those from No. 6 to No. 11 being necessary for male children and those from No. 12 to No. 18 for adults and females of all ages. Cannulæ are either straight or curved. Those which I use (Fig. 3) are slightly curved at the end to facilitate their introduction. They should be armed with stylets, which should be introduced before withdrawal of the cannula from the bladder, so as to prevent a fragment getting impacted in the eye, which would tear the urethra or possibly get dislodged in that canal.

The calculi, the débris of which I show you, varied in weight from a few grains to over 3 oz., the average weight in adults being 226 gr. and in children 79 gr. The case in which this large stone, composed mainly

[1] A paper read before the Harveian Society of London on April 28th, 1898.

[2] Baillière, Tindall, and Cox, 1896.

of oxalate of lime and weighing 3 oz. and 20 gr., was removed is interesting, so I will give the details briefly.

The patient, a man, aged thirty-four years, was sent to me by Mr. William Armstrong of Buxton. He had suffered from childhood from symptoms of stone, and had on two occasions been unsuccessfully sounded before coming under Mr. Armstrong's care. On April 29th, 1897, assisted by Mr. J. G. Pardoe, Mr. Woodhouse Braine giving the anæsthetic, I crushed and evacuated in twenty-four minutes this large and hard stone. Two days after the patient wrote to Mr. Armstrong saying that he did not know why he was being kept in bed. He was walking about his room on the fifth day, and he left the surgical home on May 9th perfectly well. This was one of the hardest and sharpest pieces of work I have ever performed. My hands were blistered from the lithotrite and my arms ached for days after the operation. I need scarcely say that it requires much practice to deal so rapidly with a large and hard stone like this. It is, I believe, the largest stone that has been removed in England by litholapaxy, though in India I have successfully removed by this method a urate stone more than twice this weight,[1] and still larger stones have been removed in India and in Egypt.

I attach the utmost importance to the rapidity with which large calculi can be removed by litholapaxy. As a rule in such cases the patient's health is broken down and the kidneys are affected. Under such circumstances prolonged narcosis leads to congestion of these organs, exhaustion of the vital powers and shock. Other things being equal I venture to say that our success will vary in inverse proportion to the length of time spent over the operation.

The average age of the adults was fifty-one years and of the children or lads under the age of seventeen years six years. The youngest child operated on by me in England was one aged one and a half years, sent by Mr. Dartnell of Rochester. The child had suffered for two and a half months from the usual symptoms of stone in the bladder. On Feb. 9th, 1897, Dr. Dudley Buxton giving the anæsthetic, I removed in six minutes a calculus, weighing 9 gr., composed of an oxalate of lime nucleus covered by phosphates. A No. 6 lithotrite and a No. 7 cannula were passed with ease. During the day the child had some scalding in passing urine. Next day I had the pleasure of seeing him with my friend Dr. John Anderson, C.I.E. The child was playing on the floor quite well and he left the surgical home on Feb. 13th. This is, as far as I am aware, the youngest male child on whom litholapaxy has been performed in England. The oldest patient of the series was a man, aged eighty-five years, suffering from a hypertrophied prostate, from whom I removed by litholapaxy, at St. Peter's Hospital, on Feb. 17th, 1897, a small prosphatic stone weighing 18 gr. This patient recovered without a bad symptom and was discharged on the sixth day. Amongst the series there were 4 females—1 child and 3 adults—litholapaxy being the operation performed in each case, the weight of the calculi ranging from 17 gr. to 290 gr.

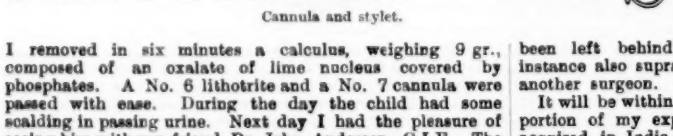
A recent case in which I removed a stone from the bladder of a female presented such an excellent clinical picture that I am tempted to give brief details thereof. The patient, aged forty-four years, had suffered for four years from attacks of renal colic, gradually increasing in frequency and intensity. About a month before I was called in a large moveable tumour developed in her left loin, accompanied by pyrexia. Pyonephrosis the result of impacted stone in the ureter was the diagnosis arrived at by her medical attendant and this view of the case was confirmed at a consultation with Dr. Sidney Ringer. Exploration of the kidney was considered advisable but shortly after the consultation the patient passed suddenly over 50 oz. of pus and urine, when the tumour and pyrexia subsided. A day or two after symptoms of stone in the bladder supervened and continued till April 1st, 1898, when I was called in. The patient being anæsthetised by Dr. Dudley Buxton, Dr. Ringer being present, I at once detected a stone in the bladder on sounding. Its crushing and removal by the aspirator were the work of a few minutes. The débris was composed of an oxalate of lime, dumb-bell shaped nucleus, covered by urates and phosphate of lime, and weighing 33 gr. The patient was up and walking about on the fourth day and is now perfectly well, free from all kidney and bladder symptoms.

Bigelow's operation in females is comparatively easy, the instruments employed being the same as for males. The only special difficulty sometimes met with is that, owing to the width and shortness of the urethra, the water which is necessary in the bladder during the crushing of the stone is liable to rush out beside the instruments. This difficulty is obviated by getting an assistant to place the fore and middle fingers of one hand in the vagina and to press the posterior lip of the urethra against the lithotrite, a manœuvre which prevents the water flowing out. Litholapaxy is eminently successful in females, the patient being, as a rule, able to walk about in a day or two after the operation. One of the most terrible afflictions that a woman can suffer from is permanent incontinence of urine; but how frequently do we find this condition after removal of stone by "rapid dilatation of the urethra." In my pre-litholapaxy days I had one such case in my own practice and I have come across several such in the practice of other surgeons, one quite recently. Bigelow's operation obviates the occurrence of this dreadful affliction, as no preliminary dilatation of the urethra is necessary for the introduction of the requisite instruments.

The time spent in hospital or under treatment in case of patients in private practice after the operation of litholapaxy varied from 2 days to 20 days, the average being a little less than 8 days. But in many instances the patients were kept two or three days longer than necessary under treatment as a precautionary measure. Contrast this period of days with the period of nearly as many weeks required after lithotomy, whether perineal or suprapubic.

These 100 operations were performed on 99 individuals, there being only one case of recurrent stone in my own practice—a man, aged eighty-four years, a patient under the care of Dr. John Anderson, with an enormous prostate. In May, 1897, I removed a small urate stone and again in February, 1898, a phosphatic stone weighing 92 gr. Three of the patients had litholapaxy performed previously by other surgeons, but in one instance only was the recurrence due to a fragment having been left behind at the previous operation. In one instance also suprapubic lithotomy had been performed by another surgeon.

FIG. 3.



Cannula and stylet.

It will be within the knowledge of many that the greater portion of my experience in this branch of surgery was acquired in India; it was in India that I performed my first litholapaxy, and it was in that country, with its splendid facilities, that I learnt how to operate for stone. I may therefore be asked, and rightly asked, Is there anything peculiar in the climate of India or in the constitution of the native of that country which renders him a better subject for litholapaxy than the European? To both these questions I answer emphatically in the negative. In the first edition of my work on Litholapaxy I collected statistics of 2592 lithotomies performed in the public hospitals in India in 1882 and found that the mortality was 13 per cent., which is practically the same as that (12½ per cent.) occurring amongst 1827 lithotomies in public hospitals in England, the statistics of which were collected by Sir Henry Thompson. But if the native of India is not a better subject for lithotomy than the European I am unable to comprehend by what method of reasoning it is alleged—and I observed that this has been persistently alleged in the medical journals—that the former is a better subject for litholapaxy than the latter.

I am now, however, in a position to speak with authority in this matter, having had considerable experience of this operation both in India and in England. Last year I had 29 operations for stone in the bladder and during the short period since I settled in practice in London I have performed 45 operations—viz., 43 litholapaxies and 2 lithotomies, all of which were successful.

I find, however, that there are some interesting features of contrast between my practice in India and in England. In the first place I find that the average age of 40 adult Europeans operated on by me is fifty-six years, nearly eleven years greater than the average age in the adult natives of

[1] Brit. Med. Jour., June 16th, 1894.

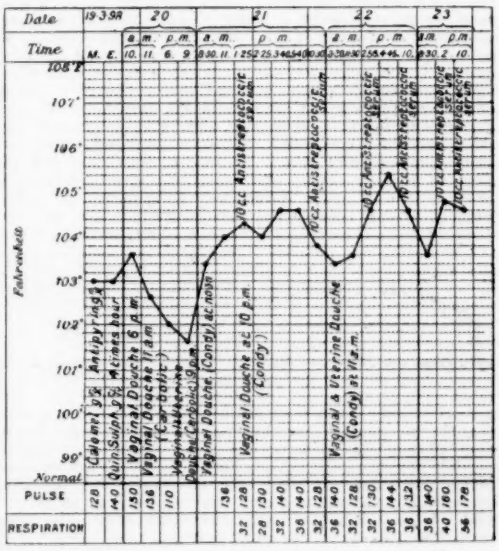
India. Mr. Cadge of Norwich, in his article on "Lithocrity," &c., in Heath's "Dictionary of Surgery," in contrasting the results obtained in my first series of 108 litholapaxies performed in India with a somewhat similar series of cases by Sir Henry Thompson in England notices this marked difference in the average age. It is simply due to the fact that the "expectation of life" in India is probably about ten years less than in England, a native of India being at fifty years of age comparatively as old as a European at sixty years of age. Secondly, the average weight of the calculi removed by me from adults in London is 149 gr. as compared with an average of 309 gr. in India. This is a point to which Mr. Cadge also called attention in the article referred to, the average weight of the calculi removed by me in India in the series referred to having been nearly two and a half times greater than that of the average of Sir Henry Thompson's series. Thirdly, the very much larger proportion of prostatic patients met with in England than in India. Before I commenced practice in London my friends and present colleagues at St. Peter's Hospital, Mr. Reginald Harrison and Mr. Swinford Edwards, frequently said to me that they believed that in the surgery of stone one met the complication of hypertrophy of the prostate much more frequently in England than in India. In holding this view I find they were perfectly correct, for amongst 39 adult males on whom I performed litholapaxy in England there were 13 suffering from hypertrophy of the prostate, or one-third of the whole, a very much larger proportion than one meets with in India and which may to some extent account for the much larger number of recurrences of stone met with in England than in India. It will be noticed that in no instance in this series was the coexistence of hypertrophy of the prostate with stone a bar to the performance of litholapaxy, though in many instances there was very great enlargement of the gland present.

Harley-street, W.

A CASE OF PUERPERAL FEVER TREATED WITH ANTISTREPTOCOCCIC SERUM; DEATH.

BY J. PAUL ROUGHTON, M.R.C.S. ENG., L.R.C.P. LOND., D.P.H.,
SURGEON TO THE KETTERING GENERAL HOSPITAL,
AND
ARNOLD G. TOLPUTT, M.R.C.S. ENG., L.R.C.P. LOND.

A WOMAN, aged twenty-seven years, gave birth to her sixth child on March 16th, 1898, at 12.45 P.M. Mr. Tolputt arrived at 1.10 P.M. and expressed the placenta with ease, the placenta and membranes being complete. Very little hæmorrhage occurred. On the 17th the patient's condition was satisfactory in every respect. On the 18th she was not visited, but on the 19th the nurse stated that she was "feverish" and flushed and complaining of faintness, and that the diapers were noticed to be "slightly offensive and the discharge scanty." The patient was found to be breathing more rapidly than normal; the pulse was 128 and the temperature was 103° F. The bowels had been opened once. There was no headache. 10 gr. of antipyrin were given and 10 gr. of calomel half an hour afterwards, the bowels being moved three times and vomiting occurring twice. A pill containing 4 gr. of sulphate of quinine was given every four hours and was continued throughout the illness. A vaginal douche was given by a trained nurse in the evening. On the 20th the condition of the patient was much the same and we decided to inject antistreptococcic serum, but were unable to obtain the serum till the next day. The patient was apparently better in the evening. On the 21st the patient's condition in the morning was grave, although she had passed a good night. A large thrombus appeared in some varicose veins of the right leg. The abdomen began to be tympanitic. The pulse, respiration, and temperature were much raised and the tongue was covered with a dry white fur. She complained of being drowsy and was a little deaf. There had been no rigor. The lochia had ceased, but they reappeared in the evening, when there was very little fœtor. Milk and beef-tea were taken in good quantities and were well retained. At 1.25 P.M. the first injection of 10 c.c. of Messrs. Burroughs and Wellcome's antistreptococcic serum was made in the abdomen, the most strict antiseptic precautions being taken in every detail. We saw the patient again an hour afterwards and practically no change had occurred in her condition, but she had slept a little. An hour later she was still drowsy; the temperature was a little higher. At 10.30 P.M. a vaginal douche was given, followed by another injection of 10 c.c. of serum; we then found the patient's state practically the same, but the condition of the tongue was much improved; the abdomen, however, was becoming more distended. In the night she was delirious at intervals and diarrhœa supervened, the bowels being opened nine times. On the 22nd in the morning the patient was worse, the abdomen was much more distended, and the clot in the veins had extended up to the groin. The lochia had altogether ceased. A vaginal and intra-uterine douche was given and an opium pill (½ gr.) was administered. The tongue continued to clean and there was



no headache and no rigor. She complained much of "wind." She continued to take nourishment well. At 2.55 P.M. 10 c.c. of serum were again injected and apparently had no beneficial effect whatever beyond keeping the tongue clean and the patient quiet. The condition of the patient gradually became more grave; the abdomen was extremely distended and the motions began to be passed unconsciously and were very offensive. At 10 P.M. 10 c.c. of serum were again injected without any improvement. On the 23rd it was evident that the patient could not recover, but two more injections of serum 10 c.c. were given. Her condition, however, rapidly became worse and she finally died at 2.30 A.M. on the 24th.

In this case the serum seems to have been useless as regards saving the life of the patient, but her general condition was certainly ameliorated. There were no rigors and there was scarcely any headache; the tongue, too, was much improved. It was perhaps unfortunate that the serum could not be obtained sooner. The only cause assignable for the infection was the insanitary condition of the house, the water having been condemned a short time previously. Also the patient had had a bad attack of diarrhœa earlier in the week. We again wish to point out that besides the use of the serum the very strictest possible antiseptic precautions were taken both as regards the instruments used and the hands of the operators.

Kettering.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

RECURRENT MEASLES.

BY J. H. BATTYE, M.D. R.U.I.

IN view of the recent extensive epidemic of measles I should like to put on record the case of my daughter, aged seven and a half years, which to me is unique. I have described it to two or three other medical men, my seniors in the profession, and they all tell me that they have not met with one like it. On Feb. 17th, 1898, there came out on my daughter a very moderate crop of morbilli of the pinkish, mild variety, beginning on the face as usual. Her temperature was 101·5° F. She had very slight bronchial catarrh, but no sickness, headache, or malaise. The rash followed the usual course, spreading downwards in patches and reaching the legs by the morning of Feb. 19th, when there was distinct waning of the eruption on the face. The temperature was not taken that morning, as on the previous evening it had been only 98·6°. At 11 P.M. she was not so well; her temperature was 105° and I found that there was a distinct second crop of morbilli of the purple variety very copious over the face, neck, and upper part of the body, intense bronchial congestion and oppression of breathing, and some cyanosis of the lips; the pulse was 160 as near as I could count, and there was great intolerance of light from conjunctivitis but no delirium. During Feb. 20th the eruption spread over the rest of the body, scarcely a particle of the skin being untouched, but the bronchitis became less, expectoration more free, and the temperature in the afternoon fell to 103·4°, rising, however, to 103·8° at 10 P.M. There was no delirium during night or day. On Feb. 21st the rash was fading on the face, but was very dark over the body and legs. The temperature fell further from 101° in the morning to 99 8° at night. On Feb. 22nd the rash was fading rapidly in the morning; the temperature was 99°, the bronchitis was passing away, the lungs were clearing, and everything seemed going on quite normally towards recovery, when just after 9 P.M. I found that the temperature was 103 4°, and that there was a fresh crop of morbilli more papular than either of the two previous eruptions, but not nearly so extensive as the second, though more than the first. Like the two previous eruptions this travelled all over the body, but there was no exacerbation of the bronchitis during the third eruption. The temperature on Feb. 23rd was 101·4° in the morning, 99 6° at night, and on the next morning (Feb. 24th) 99°. It rose again in the afternoon to 100 8° and there seemed a slight increase of the last rash, but on the following morning (Feb. 25th) the temperature was 98 4° and the rash finally disappeared on the evening of Feb. 26th having been out for ten full days.

One curious point about my daughter's case is that she had all the premonitory symptoms of measles—coryza, vomiting, headache, and lassitude with a temperature of 101° on Jan. 20th, and was kept in bed for two days and at home for ten days but no eruption of any kind followed. I may also state that her brother had measles before her, the rash appearing first on Feb. 8th, and that she was allowed to go into his room as I felt certain that she had taken it while he was incubating, an opinion justified by the appearance of the rash in her case on Feb. 17th. Were the successive eruptions of morbilli due to repeated infections from her having been with her brother? There seems to be a great variety of opinion as to whether thorough disinfection is necessary after measles and also as to the duration of infection after eruption. Some maintain that the patient is free from infection one week after the eruption appears, others that the period is three weeks. For myself I regard thorough disinfection to be as necessary after measles as after diphtheria or scarlet fever and that no one is really free from infection till after three weeks from the time of eruption, and in this last contention I think my daughter's case fully bears me out.

On April 28th my daughter was attacked with varicella and again there were no premonitory symptoms whatever. The eruption has been rather copious, but she has never had a headache or lost her appetite all through.

Belgrave-road, S.W.

HYPERPYREXIA IN MALARIAL FEVER.

BY CHARLES LLOYD WORRALL, L.R.C.P. LOND., L.S.A.

ON March 29th, 1898, I was called to see a family suffering from malarial fever, and on arriving at the house about 11 A.M. I found that a child, aged three years and seven months, had had a convulsion about 8 A.M. that day and had not regained consciousness. The convulsion lasted about five minutes, the short duration being probably due to the patient having been put into a hot bath. When I examined the child she lay on her back breathing very rapidly but with no approach to stertor. The pulse was imperceptible and the brow and face were moist and clammy. In the axilla the thermometer registered 108·8° F.; in order to guard against possible error I shook the mercury down to subnormal and replaced the thermometer in the axilla, when it again registered the same degree. The history of the case was briefly as follows. On the previous day (March 28th) the little girl had been as lively as usual until sunset, when she complained of feeling tired. During the night she was very restless and thirsty, but complained of no pain, nor was there any vomiting. She did not take breakfast on the morning of the day I saw her and at 8 A.M. she went off into a fit as stated above. On finding the temperature so high I administered a dose of calomel and phenacetin and placed the patient in a tepid bath, with the result that the temperature came down to 103° in a very few minutes. The girl was then put to bed, whereupon in a few minutes the temperature rose again to 107° and in a few more minutes came down to 106°, and at this point it remained until I left, but unfortunately the patient died in about half an hour after my departure—viz., between 1.30 P.M. and 2 P.M.

During my experience of malarial fever, which extends over three summers, I have only seen one case with a similar temperature. That patient was a woman suffering from puerperal fever complicated with malarial fever; her temperature registered 107·6° on my thermometer and 107·8° on that of a colleague. My two colleagues, the hospital and district surgeons, tell me that they have never seen so high a temperature in malaria. Of the child's case being malarial fever I have no doubt as everything pointed to it—the season, the locality, and the fact that two more of the family were suffering at the same time from distinct malarial symptoms although mild. I may add in conclusion that in children I find that a dose of calomel and phenacetin as a rule acts like a charm in reducing temperature previously to giving quinine.

Barberton, South African Republic.

BORACIC ACID AND SALOL IN CYSTITIS.

BY ARTHUR H. BUCK, F.R.C.S. EDIN.

THE following case is probably of sufficient interest for publication on account both of the age of the patient and of the marked good effect of small doses of boracic acid and salol on bacterial urine.

In the beginning of last December I performed suprapubic lithotomy on a man, eighty-three years of age. This operation was selected in preference to lithotrity on account of (1) the size of the stone, (2) its hardness, and (3) the presence of a large prostate. The bladder was drained after the operation by a large tube for three days, by a No. 12 catheter through the wound for three days, and by a catheter through the urethra for fourteen days. There was practically no escape of urine except through these tubes. Cystitis was present before the operation and in spite of washing out three and four times a day there were bacteria in freshly-drawn urine three weeks after the operation. The urine was of a dull light yellow colour and was becoming more alkaline, varying in quantity from three to five pints. On the twenty-second day 10 gr. of boracic acid, and 3 gr. of salol were prescribed every four hours. Within two days the urine was acid, and in

a fortnight it had regained its normal characters, no albumin being present and no bacteria. The patient was up in a fortnight and out of doors within six weeks after the operation. He still continues well in every way, passing a catheter nightly to get rid of residual urine. The calculus measured 1½ in. by 1¼ in.; it was composed of oxalate of lime and weighed 1 oz.

Brighton.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. THOMAS'S HOSPITAL.

A CASE OF PERFORATED GASTRIC ULCER; OPERATION; RECOVERY.

(Under the care of Dr. SHARKEY.)

IT is somewhat difficult to estimate the mortality in cases of perforated gastric ulcer which have not been treated by laparotomy, but it has been stated to be 95 per cent., and we may take this number as rather an under-estimate than an over-estimate of the death-rate from this lesion, and indeed the chance of a localisation of the effused contents of the stomach can be but small. Cases of perforation of a gastric ulcer in which previously complete adhesions have formed with a neighbouring organ, such as the liver, belong to an entirely different category and should be excluded from the statistics founded on cases perforating into the peritoneum. The mortality after the operation was considered to be about 70 per cent. by Greig Smith,[1] but this opinion was founded on only about 100 cases; since that time the operation has been performed much more freely and at an earlier period after the perforation, and the death-rate has certainly improved. Laparotomy for perforation of an ulcer of the stomach was first suggested by Dobson[2] of Bristol, and the first operation was performed by Czerny in 1885, but the patient died. This unsuccessful result was followed by four others also ending fatally, but in 1892 Kriege[3] published a case in which recovery followed the operation. The cases which have been recorded recently are numerous and we have published several in "The Mirror of Hospital Practice."[4] Every case is of interest, and the two recorded below illustrate many points of importance. In the case at St. Thomas's Hospital the value of the saline intravenous injection containing brandy is especially noteworthy. Recent papers of value on the subject are those by Pearce Gould,[5] by Barling,[6] and by Weir and Foote.[7] For the notes of the following case we are indebted to Dr. C. R. Box and Mr. Cuthbert S. Wallace.

A woman, aged thirty-three years, was admitted into St. Thomas's Hospital on Dec. 6th, 1897. The family history was unimportant. When she was fifteen years of age she first began to suffer from abdominal pain with occasional vomiting. The vomit had once the appearance of coffee; the pains at first appeared to have no definite relation to the ingestion of food or to exercise. The patient was in service and was believed to have strained herself in making a bed. From this time onward she was unable to eat meat, since it induced pain and vomiting. She had lived on milk, gruel, and fish, but the latter at times also disagreed. Five years before admission she was treated for anæmia and three years later she had hæmatemesis which succeeded an attack of vomiting. Soon after this another profuse hæmorrhage from the stomach took place. For fifteen months prior to admission to hospital she had been treated as an out-patient for gastric ulcer. The pain latterly had become more severe. Whilst walking back from her work at about 5.45 P.M. on Dec. 6th she was suddenly seized with a sharp pain in the left side just below the ribs. She reeled and would have fallen had not her sister, who was walking with her, caught her. She was carried into a shop, where she waited until a cab was procured and she was then taken to the hospital. On the way she vomited some brownish matter which was described as having the appearance of cocoa. During the day she had taken—at 7.45 A.M., bread and butter for breakfast; at midday, bovril; and at 4.15 P.M., cocoa and a biscuit. When seen at 7 P.M. the patient had an anxious expression and was complaining of intense pain in the epigastric and left hypochondriac regions. She lay on her back, with the abdomen rigid but not distended. Percussion showed a normal area of liver dulness and no indication of any fluid in the flanks. The epigastric and left hypochondriac regions were acutely tender to the touch. The extremities were cold and the temperature in the axilla was 95·6° F. The pulse was 88, small and compressible. There was no further vomiting. The urine was acid and of specific gravity 1026; it reduced Fehling's solution rapidly. At 10 P.M. the abdomen was opened in the mid-line above the umbilicus. As shock was evidently great the median basilic vein was opened and three pints of normal saline fluid containing one and a half ounces of brandy were infused. The appearance of the patient and the character of the pulse at once improved so that both were much better at the close of the operation than at the commencement. Immediately the peritoneum was opened several ounces of milky fluid escaped. The ulcer was found on the anterior surface of the stomach quite close to the lesser curvature and to the pylorus. Though somewhat deep in the abdomen it could be dragged down under the wound. The perforation was about half an inch in diameter and was surrounded on all sides by a ring of thickening. The induration was of such extent that excision was out of the question. The ulcer was therefore inverted with a double row of Lembert's sutures and was closed by an omental graft. The intestines were then turned out on to the surface of the abdomen and were washed with sterile water; the abdominal cavity and the pelvis were carefully cleaned with sponges. The pelvis contained stomach contents, but there was no sign of peritonitis. A drain having been introduced through an incision below the umbilicus the operation wound was closed. For fifteen days after the operation the patient was fed by the rectum; but then food in gradually increasing quantities was given by the mouth. The condition of the abdomen never gave cause for anxiety. For a few days after the resumption of solid food abdominal pain was present, but thenceforward the recovery was uneventful. The reducing agent was never present in the urine after the operation. The patient was discharged from the hospital on Feb. 24th, 1898, and is now in the best of health.

[1] Abdominal Surgery, vol. i., p. 570.
[2] Bristol Medico-Chirurgical Journal, 1883.
[3] Berliner Klinische Wochenschrift, 1892, p. 1280.
[4] THE LANCET, March 20th, 1897, p. 806; Jan. 15th, 1898, p. 158; and April 2nd, 1898, p. 930.
[5] Brit. Med. Jour., 1894, vol. ii., p. 859.
[6] Ibid., 1896, vol. i., p. 1314.
[7] Medical News, Philadelphia, 1896, Aug. 25th.

SOUTHPORT INFIRMARY.

A CASE OF PERFORATED GASTRIC ULCER; OPERATION; RECOVERY.

(Under the care of Mr. G. REINHARDT ANDERSON.)

A YOUNG woman, who was apparently in good health, consulted Mr. Reinhardt Anderson on Feb. 18th, 1897, complaining of pain after food. The pain was not constant and was not accompanied by vomiting. She had vomited after every meal on the 16th, but this she attributed to a bilious attack. She had never vomited blood. The pain had, she stated, existed off and on for some months. Mr. Anderson subsequently ascertained that twelve months previously—viz., in the early part of 1896—she was a ward maid in the infirmary, but she had to give up her situation because of anæmia and persistent dyspepsia. On examination the patient was found to be somewhat anæmic with pain and local tenderness in the epigastrium. Mr. Anderson prescribed a milk diet and the usual remedies. On the 21st, at 5 P.M., he received a call to see her as it was thought that she was dying. On his arrival he found that she was in a state of profound collapse; there was profuse perspiration, the face was ashen, and she had a rapid thready pulse. She complained of severe abdominal pain. There had been no

vomiting. It seemed that after eating a very hearty meal at 1 P.M., consisting of calf's heart, peas, potatoes, and pastry, she had taken a walk of over three miles. When nearing home at 4.45 P.M. she was suddenly seized with such severe pain in the abdomen that it was necessary to put her in a cab to get her home, though it was only three or four hundred yards away. From this history Mr. Anderson suspected perforation of a gastric ulcer and on examining the abdomen he made out the following facts. The abdominal walls were rigid, hardly moving at all with respiration; there was marked tympanitic resonance with absence of the liver dulness to the upper border of the seventh rib, and there was shifting dulness in either flank to a small extent. Palpation elicited general acute tenderness. A small injection of morphia was given and arrangements were made for her immediate removal to the infirmary, which was over a mile distant. At 7.30 P.M (two and three-quarter hours after the onset of the pain) Mr. Anderson operated. The abdomen was opened by a mesial incision 5½ in. in length extending from just below the xiphoid cartilage to within an inch of the umbilicus. On entering the peritoneal cavity there was an escape of gas and turbid serum with a marked gastric odour. Flakes of lymph were already visible on the surface of the liver and the omentum as they presented in the wound. On drawing down the stomach there readily came into view a small punched-out perforation from which escaped plentifully the dark-brown fluid contents of the stomach, these at first rushing unavoidably into the peritoneal cavity. Traction on the stomach induced retching and increased the flow. The perforation was now surrounded by sponges and the contents of the stomach emptied as much as was possible into a porringer. The perforation was then secured by three rows of Lembert sutures, infolding the stomach on itself, in its long axis. Fine silk was used. The peritoneal cavity was flushed out by large quantities of sterilised water poured into the abdomen from a jug, and also by means of a glass tube; the peritoneum above and below the liver, in either flank, and in the pelvis, was thoroughly irrigated. This proceeding was continued till the fluid escaped quite clear and free from all gastric odour. Very few solid particles came into view. After systematic sponging the abdominal wound was secured in the usual way. No drain was used. The operation lasted one hour and twenty minutes and the patient bore it well. The subsequent progress was an almost uninterrupted one towards recovery. Vomiting was troublesome for the first forty-eight hours, but was relieved by sips of very hot water and powders of carbonate of bismuth. A slight attack of pleurisy with effusion on the left side appeared on the fourth day, but this gradually and completely cleared up without aspiration. Rectal feeding was maintained till the ninth day after the operation in view of the tendency of the patient to vomit and also because her general condition kept so good as not urgently to demand food by the mouth. Fish was given on the seventeenth day and chicken on the twenty-seventh day. The stitches were all removed on the ninth day, the wound soundly healed, and there was neither abdominal pain nor tenderness. The temperature, which had never been higher than 102° F. on the second day after the operation, became normal on the thirteenth day and remained so. The patient was allowed up for the first time on March 24th and was discharged on April 29th. Eight months after the operation she travelled from Holyhead to Dublin. She was very sick, but sustained no harm, and in April, 1898, she was in perfect health and free from all dyspeptic symptoms.

Remarks by Mr. REINHARDT ANDERSON.—In submitting the notes of this case I am aware that there is nothing very unusual to comment upon. I was fortunately able to see the patient within fifteen minutes of the perforation and I believe that the happy result was largely due to the very short time which elapsed between the occurrence of the accident and the opening of the peritoneum. I may also mention that the perforation was small, not larger than a crow quill, and was situated on the anterior surface near the cardiac end, and though the stomach was loaded with partially digested food not much had had time to escape into the body cavity. Moreover, I was not hampered by those difficulties which have beset many other operators when dealing with similar cases—viz., the presence of induration around the seat of the ulcer or of extensive adhesions.

The chief interest in the above case seems to me to lie in the absence of previous symptoms pointing to a gastric ulcer. The patient's complaint was of vague pain and discomfort after food, her appearance was that of good health, and she was able to fulfil without trouble the arduous duties of waitress in a busy restaurant, so that I must confess that at my first and only interview with the patient 3 days before the occurrence of the acute mischief I was not impressed with the idea that she had a gastric ulcer. I prescribed the milk diet more as a precautionary measure, advice which was evidently totally disregarded. The presence of small, solitary, punched-out ulcers, which in recorded cases are found so frequently in sudden perforation of the stomach, is a matter of some interest, for they may exist without giving rise to more than ill-defined symptoms of dyspepsia, and they may easily be overlooked without careful palpation for a tender or painful area. It is certain that since my experience in the above case I have treated with more respect similar cases coming under my care, and I have enforced the absolute rest which is needful to avoid a possible perforation. In the treatment of this accident there is little doubt that the best chance for the patient lies in early diagnosis and prompt operation.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Intra pleural Tension.

A MEETING of this society was held on May 10th, the President, Mr. BRYANT, being in the chair.

Dr. SAMUEL WEST read a paper on Intra-pleural Tension, of which the following is an abstract. Dr. West pointed out that the two layers of the pleura, which in health are in close contact, are subject to a constant strain which tends to pull them apart called the "intra-pleural tension," which is for all practical purposes equal in amount to the elastic contraction of the lung, but opposite in direction. The respiratory movements cause constant variations in this tension owing to the different degree to which the lungs are on the stretch in the different phases of respiration. Besides this, the air is somewhat hampered both on its entrance and on its exit from the air-tubes to the extent of half a millimetre of mercury on inspiration and from one and a half to two millimetres on expiration, causing a respiratory oscillation equal to about 2 in. of water. During normal quiet breathing, both on inspiration and expiration, the intra-pleural tension is negative. During forced inspiration the negative value is increased, but during forced expiration the negative value may be converted into a positive one; but as long as the two layers of the pleura are in contact this positive pressure during expiration is supported by the chest walls and does not, except theoretically, affect the pleura. Under pathological conditions, if the pleura contain air or fluid, this pressure then will affect the contents of the pleura also. The effects produced will vary according as the pleura is occupied by fluid, which is practically incompressible, or by air, which is easily compressible. The methods of estimating intra-pleural pressure are mainly two: first, measuring the elasticity of the lung, as Donders did; and, secondly, direct investigations by passing a trocar into the pleura through the chest walls. Perl's observations were referred to and various conclusions which may be drawn from them were stated with comments. When one side of the chest is opened the admission of air goes a long way to satisfy the elasticity of the lungs on both sides. Where the two layers of the pleura are more or less adherent the intra-pleural tension is more or less diminished. Where the pleural cavity is obliterated and the one lung contracted while the other has become enlarged the elasticity of the sound lung is greatly increased, proving that this is a condition of complementary hypertrophy, and not, as it is often called, complementary emphysema. Arguments were adduced to show that the contractility of the lung was probably not purely elastic, but partly muscular, and that there was such a thing as "pulmonary tone," in the same sense as physicians speak of "vascular tone," which may vary considerably in different constitutional conditions or in different nutritive states of the lung. Under pathological conditions the two layers of the pleura may be separated either by air or by fluid, and these present each of them its own peculiarities; thus

fluid has weight, but is practically incompressible; while air is compressible, but its weight may be disregarded. In the case of fluid effusion, therefore, the height of the column above the point of the trocar would affect the manometer reading. With a small punctured wound, as with a stab, or when the lung is injured, as with a fractured rib, the air does not often enter the pleura, but passes across it and makes its way to the subcutaneous tissue. Where there is a large opening through the chest-walls at least as large as the cross-section of the trachea air will pass in and out easily during respiration, and no effect being produced upon the lung it will collapse by virtue of its own elasticity, yet not completely. On the contrary, in such cases the lung is not infrequently found considerably expanded and quite near to the chest-walls, especially if there be forced expiratory efforts, as in coughing. Where the opening in the chest walls is not large enough to allow the air to pass freely out during expiration the pressure within the pleura will rise during expiration and tend therefore to compress the lung; and this is almost always the case where the perforation of the pleura is from within—e.g., from the lung—for it can rarely happen that the air can pass as easily out through the opening in the lung during expiration as it passes in during inspiration. The intra-pleural pressure in cases of pneumothorax during inspiration and during expiration must be considered separately. (1) During inspiration the air will enter the pleura as long as the pressure within the pleura is below that of the atmosphere and then no more can enter. The inspiratory pressure, therefore, cannot exceed that of the atmosphere with air alone, or very slightly where there has been deep inspiratory effort. If the inspiratory pressure is permanently raised some other factor is necessary to produce it, and that is generally the presence of effusion. (2) The expiratory pressure in pneumothorax is always positive and may be high if the expiration be forcible. Thus considerable pressure will be exercised upon the lung and mediastinum, so that the lung will be compressed and the mediastinum considerably displaced. The respiratory oscillation in pneumothorax is generally small, for on the affected side the chest is usually in the position of maximum inspiratory expansion, and on the opposite side, owing to the displacement of the mediastinum, the expiratory contraction of the lung is diminished. The observations upon which the preceding remarks were founded consisted of 20 paracenteses performed in 11 cases of pneumothorax. In 2 cases the inspiratory pressure was zero, but in the rest it was positive, and all of those associated with fluid, the range of pressure thus varying from zero to 9 in. That the pressure in pneumothorax when fluid is present is not higher than it is must be due to the fact that a large amount of the air is absorbed. A persistently high pressure would probably indicate some diseased condition of the pleura and lung which has prevented the ordinary absorption of the air. In serous effusion the pleura, it is probable, is kept dry in health by the action of what has been described as the "lymphatic pump"—viz., the stomata—and the valved lymphatics into which they lead, worked by the respiratory movements. Fluid, therefore, may accumulate in the pleura in two ways; either it may be poured out in larger quantities than the pump can remove or the amount of fluid may not be above the normal, but the pump defective. When fluid collects in the pleura it falls by its own weight to the lower part, and it is the lower parts of the lung consequently that become more collapsed, but the tension in the upper part is also reduced, as is shown by experiment. In estimating the intra-pleural pressure with serous effusion something will depend upon the seat of puncture and allowance has to be made, if possible, for the height of the column of fluid above the mouth of the trocar. The observations upon the pressures in pleural effusion were then recorded. The records show that with serous effusion the pressures vary greatly and irregularly; that there is no definite relation between the size of the effusion and the amount of pressure, for there are instances of large effusion with low or even negative pressure and of small effusions with high pressure. The respiratory oscillation is generally reduced and may be completely absent. Inasmuch as the action of the lymphatic pump depends upon the respiratory movements, of which the respiratory oscillation is the index, it is evident that where the respiratory oscillation is absent the mechanism for the removal of fluid is at a standstill. Where the respiratory oscillation has been absent at the commencement of paracentesis it often returns at the end, showing that the lymphatic pump has been set to work once more. This explains why the removal of a small amount of fluid often determines the rapid disappearance of the rest. The observations recorded show that intra-pleural pressure in serous effusion is not so simple as it might *a priori* be thought to be; that it depends upon many factors which are difficult to allow for; and that the whole subject requires further investigation. Intra-pleural pressure in empyema is much simpler than in serous effusion. In all the cases observed the pressure was considerably increased, the lowest being + 3 and the highest + 16; but, as might be expected, small effusions are quite as likely to have high pressures as large. The respiratory oscillation is practically absent. The bearing of these various facts upon practice was referred to in the course of the paper.

Dr. LAZARUS-BARLOW said that there were several points on which he would like to offer some criticisms. Dr. West had explained the increase of elasticity on the sound side as proving that the lung was in a condition of compensatory hypertrophy, but apart from the improbability of true hypertrophy occurring in so complicated an organ as the lung the increase might be partly due to resilience of the chest wall, which Sir R. Douglas Powell had shown to be an important factor in the causation of emphysema. In any distended elastic bag the recoil was very much greater with considerable amounts of distension than when it was only slightly distended. As to the existence of "pulmonary tone" he had been working at the histology of the lung and had been unable to find any unstriped muscle fibres in the lung, although there were some in the lung of the guinea pig. There were, of course, fibres in the blood-vessels, but the investigations of Bradford and Dean had shown that the nerves had little influence over them. As regards the "valve theory" accounting for the increase of pressure in some cases of pneumothorax he thought that the condition of the pleura must be taken into account as well. Cohnheim had shown that it was impossible when the pleura was healthy to obtain sustained increase of pressure owing to the rapid absorption. Hence cases of pneumothorax occurred particularly in cases of tuberculosis where the pleura was abnormal. Dr. West attributed the rapid absorption of fluid after a small portion had been drawn off to the action of the lymphatics, but Dr. Lazarus-Barlow thought that the experiments of Dr. Starling showed that fluids injected into a serous cavity were absorbed chiefly through the vessels. If a coloured solution, for instance, were injected the colouring solution appeared in the urine before it appeared in the thoracic duct. He thought that it was probable that this absorption depended, not only on local conditions in the thorax, but on some alteration of balance throughout the body.

Dr. NORMAN MOORE said that the paper would be useful in directing attention to the question of entrance and exit in the case of the pleura. It was now recognised that a serous pleural effusion did not necessarily become purulent in time, but that the entrance of some organisms was necessary. Some went so far as to say that there was also some tuberculous disease of the pleura, but without going to that extreme Dr. Moore considered that this was more frequent than had been previously supposed. The tuberculosis might remain localised to the pleura, just as it often did in the case of the peritoneum.

Dr. CALVERT said that he had made experimental observations on the injection of a small quantity of fluid into the lower part of the pleural cavity. He found that there was not merely compression of the base, but that there was a general contraction of the lung which affected the apex as soon as the base. He did not agree that it was necessary for the lung to have collapsed before there could be positive pressure. He thought that this positive pressure occurred when the effusion was localised by adhesions.

Dr. ROSE BRADFORD agreed with Dr. Calvert as to the increase of pressure in cases of localised effusions and remarked that the physical signs in such cases resembled those of empyema rather than those of free pleural effusion, particularly in the presence of tubular breathing. He agreed with Dr. Lazarus-Barlow that the absorption from serous cavities was mostly by way of the blood-vessels. But as to the existence of pulmonary tone, he pointed out that his experiments showed not that the nerves had no influence on the pulmonary vessels, but that it was insignificant compared with the vaso-motor arrangements of the systemic

vessels, so that the existence of such a tone as Dr. West had described was possible. The pulmonary vessels had great power of absorption and this was greatly favoured by the movements of the lungs. The collapse of the lung in cases of pneumothorax was partly due to the rapid absorption of the air in it by its own blood-vessels. The valve theory he considered hypothetical.

Mr. PEARCE GOULD asked for an explanation of the displacement of the heart and mediastinum in cases of pleural effusion. The presence of a small quantity of fluid had been mentioned as necessary for increase of intra-pleural pressure in cases of pneumothorax. He mentioned a case of a boy admitted to hospital with pneumothorax due to injury of the chest, from whose chest air escaped with a rush on paracentesis, but in whom there were no signs of any fluid in the pleural cavity.

Dr. WEST, in reply, said that he did not think that it was any more difficult to conceive of pulmonary hypertrophy than of hypertrophy of the kidney which was so common. He was aware of Cohnheim's experiments on dogs, but it did not follow that the same conditions obtained in man. Several speakers had spoken of the absorption of serous fluid through the vessels, but he thought that the lymphatics also played an important part.

MEDICAL SOCIETY OF LONDON.

Treatment of Tuberculous Disease of the Bladder.—Recurrent Hæmatemesis due to Hepatoptosis.

A MEETING of this society was held on May 9th, the President, Dr. SANSOM, being in the chair.

Mr. MANSELL MOULLIN read a paper on the Treatment of Tuberculous Disease of the Bladder. He called attention to the present very unsatisfactory methods of treating tuberculous cystitis. If constitutional methods failed or were impracticable from a patient's position in life or from other reasons there was nothing left. Local applications were condemned on various grounds. They increased the risk of septic cystitis. They helped to extend the tuberculous disease by the way in which they bruised and injured the still healthy portion of the mucous membrane; and they were of no use, for they never reached their mark. The bacilli were much too well protected by the depth at which they lay in the tissues and the coating of caseous *débris* that formed upon the floor of the ulcers to be affected by iodoform or lactic acid or any other substance that could be injected into the bladder. Drainage at best was only a palliative and in many cases made matters worse, as the tuberculous disease grew down and infected the track of the drainage-tube. For cases such as these if constitutional measures failed there was nothing left, and the question Mr. Mansell Moullin wished to raise was whether some might not be relieved, and perhaps even cured, by adopting much more energetic measures at a much earlier date; whether, in short, the local treatment of tuberculous cystitis had not fallen into its present state of disrepute because it had been too feeble and too late. Suprapubic cystotomy was an operation almost devoid of risk, at any rate in the earlier stages of tuberculous cystitis. Removal of the growth either by excision or erasion under such conditions was a perfectly feasible measure whatever it might be later. The only argument against operation was that the disease in the bladder was nearly always secondary and therefore its removal would not really benefit the case. Mr. Mansell Moullin pointed out that the mucous membrane of the bladder rarely became infected through the epithelial surface. This, unless it was injured in some way, was an efficient protection. Nearly always the bacilli invaded it either by direct continuity from some neighbouring organ or through the medium of the blood-vessels or the lymphatics. In the case of tuberculous pyelitis this was undoubtedly easy as there was a free communication between the lymphatics of the pelvis of the kidney and those of the mucous membrane of the bladder, and when the ulceration began at or around the orifice of one of the ureters the presumption was in favour of its being secondary. But when the disease commenced in other parts of the bladder, or even of the trigone, this was by no means so certain. Tuberculous disease usually began in the trigone of the bladder, not because this was in relation with the generative organs, but because this was the most vascular and physiologically the most active part of the bladder. The bacilli infected it first for the same reason that they attacked the growing epiphyseal line of a bone and not the shaft; and, further, the communication between the lymphatics of the genital organs and those of the mucous membrane of the bladder is by no means free. Especially in the case of women, whose generative organs were not so prone to tuberculous disease as those of men, the tuberculous cystitis, if not secondary to pyelitis, was nearly certain to be primary; and even in men, judging from the extreme frequency of tuberculous epididymitis and the comparative rarity of tuberculous cystitis, the extension of the disease from one to the other would not be so easy as it was usually imagined. Everything depended upon early diagnosis and now that the cystoscope and centrifugalisation of the urine were in common use there ought to be no difficulty in diagnosing the beginning of tuberculous cystitis and eradicating it thoroughly. Mr. Mansell Moullin brought forward particulars of various cases in support of this view. He had operated three times himself and seen two other cases in which operation might have been performed with advantage. One patient was operated upon in January, 1891, and was still well. Two others had been operated upon by Mr. Battle, one, the first in England, so long ago as 1889. Five years afterwards the patient had had no recurrence. And there were upwards of 30 cases recorded as having been operated upon abroad. In most of these the disease was primary, but in 3, other organs were involved as well and yet the patients had been benefited very materially. Reverdin's patient, for example, had suffered two years before from tuberculous epididymitis and was well two years after the operation in spite of having had a perinephritic abscess; Greiffenhagen's patient had a caseous abscess in the perineum, probably in connexion with one of the vesiculæ seminales; and Bell has reported a third case in which, in spite of the presence of tuberculous epididymitis, the bladder symptoms almost disappeared after the ulcers had been scraped with a Volkmann's spoon and cauterised. Two years later, when the testis was removed, the man was described as well with the exception of some incontinence of urine. Mr. Mansell Moullin agreed that it was of no use attempting a radical cure when the bladder had become so rigid and contracted that suprapubic cystotomy was almost out of the question. But he urged that if the diagnosis was made at the beginning, as it should be, and the patient did not rapidly improve under constitutional measures, suprapubic cystotomy followed by excision or erasion of the growth offered a fair prospect of cure in cases in which the infection of the bladder was primary, and that even in those cases in which other organs were involved as well the operation would, with very little risk to life, provide a means by which much of the suffering which inevitably follows in those cases might be successfully prevented.—Mr. FREYER observed that there were great difficulties in the diagnosis of tuberculous disease of the bladder. The hæmaturia, pain, and increased frequency of micturition which were usually present often suggested the presence of a stone, but, whereas the increased frequency of micturition in the case of calculus diminished when the patient was recumbent and during the night, there was no such remission in the case of tuberculous cystitis. Primary tuberculous disease of the bladder was very rare. He thought that it was almost always secondary to tuberculous disease in some other part of the genito-urinary tract, the site of primary disease being, in order of frequency, (1) epididymis, (2) vesiculæ seminales, (3) prostate gland, (4) testicle, and (5) kidney. He himself had opened the bladder in six cases for tuberculous cystitis and he had regretted it in every case but one, and he thought that constitutional medical treatment did more for the patient. The local mischief appeared to increase after the erasion and months elapsed before the suprapubic incision could be closed. He could not agree that the operation was free from risk seeing that Mr. Barling had shown that out of about 50 children on whom suprabubic cystotomy was performed for stone no fewer than 20 per cent. succumbed. As regards the site of the disease he thought from cystoscopic examination that most of the lesions were at the neck of the bladder or at the trigone owing to the proximity of the vesiculæ seminales, &c.—Mr. BATTLE observed that it was worth while trying to give surgical relief to these cases as the state of the patient was such an extremely miserable one. There were two classes of cases, the first in which there was a definite ulcer which might be easy to reach and a second in which the mucous membrane was

studded all over with tuberculous granulations, these being most numerous at the trigone. He agreed that primary cases were very rare, but when they occurred they were very amenable to surgical treatment if they were attacked early. He mentioned five cases in which he had operated for tuberculous cystitis, one in a woman, the other four in men. 1. A woman, thirty years of age, who was extremely exhausted from chronic cystitis. She improved very much after scraping, but died from hemiplegia due to cerebral thrombosis. 2. A man who got well and continued well five years after operation. 3. Another who refused to continue treatment after the operation and yet was free from sign of tubercle elsewhere and the local condition had greatly improved. 4. A patient who had had hæmaturia for four months. The mucous membrane was found covered with granulations which were scraped away, but he did not improve much, although the suprapubic opening was kept open for six weeks. 5. A man in whom no improvement occurred. He had not seen the evil results from suprapubic cystotomy which had been referred to unless an attempt were made to close the wound too early.—Dr. CLIFFORD BEALE said that the statistics of the Victoria Park Hospital for Diseases of the Chest showed how rare was the association of tuberculous vesical disease with that of the lungs. Dr. Beale mentioned one obscure case in which there was much pain, with intermittent escape of pus in the urine, which relieved the pain. At the necropsy this was found to be due to tuberculous disease of the vesiculæ seminales.—Mr. MANSELL MOULLIN, in reply, said that he did not claim that every case could be benefited by cystotomy. He was surprised to hear it said that cystitis was so often secondary to tuberculous vesicular disease. It occurred in women in a large proportion of cases, and here this explanation could not hold good. Even if the primary disease were in the genito-urinary tract all parts of it, including the seminal vesicles, could now be easily reached by operation.

Dr. MACNAUGHTON-JONES read a paper on Recurrent Hæmatemesis due to Complete Hepatoptosis discovered by Laparotomy. The patient, aged thirty-eight years, the mother of seven children, had been very delicate in childhood and had suffered from severe gastrodynia, with vomiting, amenorrhœa, and anæmia during puberty. At the age of nineteen years there was hæmatemesis, supposed to be due to either gastric ulcer or vicarious menstruation. She was married at the age of twenty-three years and five months after her first labour there was recurrence of the hæmatemesis. Following a miscarriage in 1895 there was severe metrorrhagia and in December of the same year there was again hæmatemesis. The metrorrhagia recurred in 1896, when she had an attack of typhlitis. In 1897 gastrodynia and vomiting occurred after eating some shellfish and continued on and off until July, when severe hæmatemesis again set in. On July 14th she was seen with Dr. William Barter. She then was blanched, extremely weak, with rapid pulse, nourishment being administered by enemata, as no food could be retained by the stomach. There was no pain. The abdominal percussion note was resonant in every direction save in the right hypochondriac, lumbar, and inguinal regions, in which a fairly large moveable mass extending from the lower ribs to the inguinal region could be defined. Its edge gave the tactile impression usually experienced on feeling an enlarged spleen. There was neither a renal nor hepatic line of demarcation. Diagnosis resolved itself into the question of hepatic or renal enlargement and the view was taken that it was an enlarged and moveable renal tumour. The condition of the patient was most alarming and precluded abdominal section. Her condition having improved abdominal exploration was carried out on September 17th in the presence of Mr. Bland Sutton. The tumour was reached by the ordinary Langenbuch's incision for nephrectomy, but when the abdominal cavity was opened it was found that it was the edge of the liver which extended from the costal cartilages to the iliac fossa, the right lobe being in the latter position. The gall-bladder was exposed and was found a few inches below and to the right of its natural position. On passing the hand under the diaphragm the vault was found to be empty. The liver was darker than usual and the surface was somewhat deeply injected. The spleen and both kidneys were examined and found to be normal. The liver was resting directly on the right kidney. It was replaced in the same position and the stomach was taken out, laid on the abdominal wall, and in its turn closely examined. It was somewhat enlarged and its vessels were rather distended, but nothing abnormal to touch was found. After careful readjustment of the parts the abdominal wound was closed in the usual manner. The patient made an uninterrupted recovery without any complication. There was no sickness after the operation nor has there been any since. She gradually returned to ordinary diet and left on Oct. 10th for the seaside. "Since then," Dr. Barter writes, "the patient has gone on improving and now, with the help of an abdominal support and with due regard to careful dieting and exercise, is better than she has been for years." Dr. Macnaughton-Jones reviewed the literature of displacements of the liver hitherto published, quoting Mariano Semmola's and Giofredi's exhaustive paper on the subject in 1895, and the condition "hepatoptosis," or migratory or moveable liver, the term applied by Glenard to this condition, in contra-distinction to transposition of the liver, of which but a few cases have been recorded. In 1754 Laurent Hiester demonstrated a laterally displaced liver on the cadaver and Catani in 1866 for the first time on the living subject. In the majority of cases only a lobe has been displaced. No such complete displacement as occurred in this case had, so far as he was aware, been described or discovered during life by operation. Out of 70 cases which had been collected up to 1895 by Graham, in only 8 was there any certainty of diagnosis, and in but 4 was the condition discovered by operation. Peters, Richelot, Terrier and Baudain, and Binnie were the operators. Billroth first sutured the lobe of the liver to the abdominal wall and h patopexy had been successfully performed by Marchand and Ischering and other operators. The particulars of these cases and of others were given where the liver was found in an umbilical or abdominal hernia. The association of hepatoptosis with moveable and enlarged kidney was frequent, hence the error into which some had fallen of mistaking the hepatic tumour for a renal one. The assigned causes, as congenital malposition, enlargement of the kidney, injuries, tight lacing, and lengthy ligaments, were considered, and the more common symptoms to which hepatoptosis gave rise. In many cases hepatopexy was out of the question, as in the case brought forward, but its feasibility had been proved in the instance of partial lobular displacements.—Mr. BATTLE said that during the last few weeks he had met with a case which he thought to be of the same nature. The patient came to him on account of severe right-sided abdominal pain. She was forty-five years of age and had a lax, pendulous abdomen. A mass, believed to be the liver, was felt lying transversely just below the umbilicus. When the patient stood up the mass sank down to the level of Poupart's ligament. The application of a flannel bandage had entirely relieved her symptoms.—The PRESIDENT said that the association of hæmatemesis with hepatoptosis was a very unusual one. It was curious that although there was so much dislocation of the organ and interference with the position of the vessels ascites had been present in so few of the recorded cases.—Dr. MACNAUGHTON-JONES, in reply, said that the mass exactly simulated a renal tumour and was only discovered to be the liver at the operation. In another case its nature might be suspected if there were absence of the hepatic dulness in its normal position.

The following is the list of officers elected for the ensuing year:—President: Mr. Edmund Owen. Vice-Presidents: Dr. J. Kingston Fowler, Mr. John H. Morgan, Dr. J. Mitchell Bruce, and Mr. George R. Turner. Treasurer: Mr. David H. Goodsall. Librarian: Dr. William Henry Allchin. Honorary secretaries: Mr. William H. Battle and Dr. James Calvert. Honorary secretary for foreign correspondence: Mr. Alban H. G. Doran. Council: Dr. John Anderson, C.I.E., Mr. William H. Baker, Dr. E. Clifford Beale, Dr. Frederick L. Benham, Dr. Robert L. Bowles, Mr. Stanley Boyd, Dr. William Ewart, Mr. A. Pearce Gould, Dr. Constantine Holman, Dr. Hector W. G. Mackenzie, Dr. Robert Maguire, Dr. Sidney H. C. Martin, F.R.S., Dr. J. Baldwin Nias, Dr. Humphry D. Rolleston, Dr. Amand Routh, Dr. A. Ernest Sansom, Mr. Morton Smale, Dr. John C. Thorowgood, Mr. Frederick C. Wallis, and Mr. Arthur K. Willis.

OBSTETRICAL SOCIETY OF LONDON.

Primary Carcinoma of the Fallopian Tube.—Exhibition of Specimens.

A MEETING of this society was held on May 4th, Dr. C. J. CULLINGWORTH, President, being in the chair.

Dr. HUBERT ROBERTS read a paper on a case of Primary

Carcinoma of the Fallopian Tube. The patient, a woman, aged forty-three years, had been married seven years, but had not been pregnant. She had been in good health until March, 1896, when she had a violent attack of abdominal pain accompanied by a vaginal discharge. Other similar attacks occurred in July and November and gushes of watery fluid were noted. On admission in February, 1897, the patient was thin and the uterus was displaced to the left side by a fixed mass of the size of a hen's egg felt in the right fornix, but not tender. There was a watery vaginal discharge. The right tube, enlarged to the size of a Bologna sausage, was removed by Mr. Meredith on Feb. 24th, 1897. It was full of papillomatous-looking growth, which microscopic sections showed to be carcinoma. Reference was made to published cases of primary carcinoma of the Fallopian tube. Removal was advocated, the prognosis being by no means gloomy.

Mr. ALBAN DORAN gave a short history of the literature of Primary Carcinoma of the Fallopian tube with a table of the 23 cases published up till April, 1898, to which he now added a twenty-fourth case reported by Jacobson in *La Gynécologie* for April, 1898; the tube was removed through a vaginal incision and, as in other reported cases, the uterine end was free from disease. The patient was sterile and it was interesting to note that out of the 24 cases only 3 had borne so many as 3 children. Mr. Doran had recently operated on a woman, aged forty-five years, who had been twelve times pregnant. On March 13th she had an attack of labour-like pains, a similar seizure occurring two days later; with each pain much water escaped, till at length she was drenched as in an ordinary labour. A large tender mass could be felt in the right fornix and a smaller body on the opposite side. The symptoms suggested papilloma or cancer of the tube, but he simply found tough, tortuous tubes, with their canals undilated, closely adherent to the uterus and adjacent structures. Mr. Doran believed that primary cancer was commoner than papilloma of the tube or that the latter was very liable to malignant degeneration. Of 7 authentic cases of papilloma 2 had died from the operation, whilst one (Watkins, New York) was very recent; Kaltenbach's case (No. 3 in the tables) had proved malignant, whilst the earliest of all the papilloma series (Spencer Wells 1879) was alive and in excellent health in 1897, though the clinical symptoms before operation were very grave. He agreed with Dr. Stevens that cancer of the tube might arise from Wolffian tubes included in the tubal wall (von Recklinghausen). In order to gain as precise knowledge as possible about recurrence Mr. Doran had communicated with all the authors of cases where the report was incomplete. As for surgery, removal of the tube alone through the vagina seemed questionable, as the state of surrounding parts could not readily be ascertained. Watkins and Schanta removed the uterus with the cancerous appendages. This operation is questionable, however, when the uterine end of the tube is free from disease and useless when the outer end has infected structures to which it has become adherent.

Dr. PETER HORROCKS pointed out that carcinoma of the cervix was common and nearly always occurred in parous women; carcinoma of the body of the uterus was much rarer and occurred chiefly in multiparæ; whilst carcinoma of the Fallopian tubes was the rarest of all and occurred in sterile women chiefly. He thought that clinical evidence showed that tissues which were used much and were liable to damage were more prone to carcinoma than others and this rather favoured the idea that carcinoma was due to, or in some way associated with, a microbe which would first meet with the cervix, and if that were damaged (split cervix) elect the damaged part for its growth. But if it were a multiparous cervix then the microbe might travel into the body or Fallopian tube. It was better to remove this growth in the tube by abdominal than by vaginal section.

Dr. AMAND ROUTH alluded to the difficulty of diagnosis. In Case 2 in Mr. Doran's table, which had occurred in his own practice and in the majority of those in the table, there was usually early continuous pelvic pain simulating acute salpingitis with slight perimetric extension; and when this was associated with sanious, often offensive, discharge, together with a tubal swelling, the diagnosis of some new growth in the tube was probable and fairly certain if by a preliminary dilatation the uterus could be excluded as the source of the discharge.

Dr. ADDINSELL drew attention to the fact that in nearly all the recorded cases the most noticeable clinical features were pain and watery discharge and pointed out that the presence of these symptoms could not be considered pathognomonic of either primary carcinoma or papilloma of the tube as they occurred in some cases of hydrosalpinx.

Dr. GILES drew attention to the unfavourable prognosis in cases of cancer of the Fallopian tube. Of the 23 cases in Mr. Doran's table, in 2 no operation was performed or it was incomplete; in 2 which recovered the patient was lost sight of; in 2 the operation was fatal; of the remaining 17 cases recurrence took place in 10, the time of recurrence averaging from six to eight months after operation; of the 7 cases reported as remaining well there was only 1 that could be safely pronounced to be cured (seven years after operation). In the others the time was too short to allow of a positive statement, the longest time being nineteen months.

Dr. ROBERTS and Mr. DORAN replied.

The following specimens were exhibited:—

Mr. TARGETT: Intestinal Obstruction following Ovariotomy.

Dr. PETER HORROCKS: Fibroma of the Uterus with Sarcomatous Degeneration.

Mr. ALBAN DORAN: Hæmorrhage from the Fallopian Tube without evidence of Tubal Gestation.

OPHTHALMOLOGICAL SOCIETY.

Chip of Steel in the Eye with Skiagraph.—Ophthalmoplegia Externa with Impairment of the Orbicularis Oculi.—Rudimentary Development of the Iris.—Conical Cornea Treated by the Galvano cautery.—Case of Retinitis Circinata.—Peculiar Condition of the Lens.—Exhibition of Specimens.

A CLINICAL meeting of this society was held on May 5th, the President, Mr. H. R. SWANZY, being in the chair.

Mr. ERNEST CLARKE and Dr. MACKENZIE DAVIDSON showed a case of Chip of Steel in the Eye with Skiagraph. The patient was struck by a chip of steel in the right eye in November, 1897. A scar could be seen in the cornea and in the anterior and posterior portions of the lens capsule. The opacity in the lens had somewhat increased since and vision was reduced from $\frac{6}{12}$, when first seen, to $\frac{6}{18}$. A skiagraph taken by Dr. Mackenzie Davidson showed that the piece of metal was lodged in the ciliary region at the lower part. On ophthalmoscopic examination a mass of exudation could be seen at this point. The exposure had now been reduced to ninety seconds and in the case of a child to one minute.

Dr. JAMES TAYLOR showed a case of Ophthalmoplegia Externa with Impairment of the Orbicularis Oculi. Hughlings Jackson had first drawn attention to a case exhibiting weakness of the orbicularis in paralysis of the third nerve exemplifying Mendel's hypothesis that the ultimate nerve supply of the orbicularis was the third nerve. Mention was made of the similar association between paralysis of the orbicularis oris and the hypoglossal nerve.—Dr. BEEVOR said that he had shown a case at this society a few years ago in which there was double ptosis and weakness of the orbicularis; it was probable that in most of the cases where the nucleus of the third nerve was involved the orbicularis was affected. Dr. Taylor's case was important as other muscles which had a nerve supply originating in the bulb—those of the palate—were affected; he believed this to be rare.—Mr. FLEMMING said that anatomists were now agreed on anatomical evidence that the orbicularis was supplied from the third nerve nucleus.

Mr. JOHN GRIFFITH showed two cases of Rudimentary Development of the Iris. The patients were brother and sister, in whom the iris was present only as a rudimentary band, which was absent in the lower outer part entirely; the choroid and ciliary body were normal. In one of the cases there were anterior polar cataracts without sign of previous perforation of the cornea and the lenses were slightly displaced upwards. In both patients there was defect of the enamel of the teeth and there was a history of fits.—Mr. SYDNEY STEPHENSON had shown at the society two brothers with daniridia in whom there was deficiency of the enamel of the teeth known to dentists as hypoplasia.

Mr. G. A. CRITCHETT showed a case of Conical Cornea treated by the Galvano-cautery. The improvement in vision had been in the right eye from $\frac{6}{60}$ to $\frac{6}{9}$ and in the left from $\frac{6}{60}$ to $\frac{6}{12}$. In the last series of cases, about 15 in number, he had tried not to perforate the cornea; he used the cautery

wire at the lowest possible red-heat, so that not much more than the epithelium was affected; the whole area intended to be affected was burnt with this, then at a slightly greater heat he burnt a smaller disc within this area; then at a higher temperature still he burnt the centre at a point only. During the first burning the aqueous disappeared and the iris came into contact with the cornea. He used a flat, medium-sized point except for the central and last burning, when he used a small one.—Mr. HARTRIDGE asked the reason for using the different degrees of heat; he was in the habit of using one temperature only and had never seen the aqueous disappear.—Mr. CRITCHETT said he thought a better cicatrix was obtained by this method.—Remarks were made by Mr. DOYNE, Dr. COLLINS, Dr. TAYLOR, Mr. GRIFFITH, and Mr. GUNN, in reply to which Mr. CRITCHETT said that although the iris in these cases was in contact with the cornea the aqueous did not completely disappear in the centre of the pupil, and mentioned one case in which perforation during the application of the cautery was followed by escape of aqueous. Tension was diminished. The cautery was applied outside and below the centre of the pupil so as not to interfere with the visual portion, the apex of the cone being also below.

Dr. FISCHER showed a case of Retinitis Circinata. The patient was a woman, aged sixty-six years, unconscious of anything wrong with her left eye. She was healthy and had no ascertainable kidney disease. The right eye was quite normal; in the left there was well-marked retinitis circinata completely surrounding the yellow spot, which was degenerated.—Mr. LAWFORD thought this case was not typical inasmuch as there was little or no change at the yellow spot and the band of exudation was distinctly raised. The other eye also was quite free from retinal disease.—Mr. GUNN thought this one of the manifestations of old-standing œdema of the retina and that it was similar in nature to the asterisk seen in renal retinitis. There were arterial changes in this case.—Mr. DOYNE thought that the exudation was decolourised blood. The greater functional activity in the muscular region explained the earlier absorption there.—Mr. HARTRIDGE had shown a case at the society some years ago; the exudation had since entirely disappeared, leaving only pigmentation.

Mr. MARCUS GUNN showed a Peculiar Condition of the Lens in a child who had a cataract in the right eye which had been diagnosed in early life, but nothing had been done for it. The right iris was much lighter in colour than the left; there was punctate deposit on the back of the cornea; the centre of the pupil was like an ordinary opaque membrane, with holes in it through which the optic disc could be seen with + 10 D. The peripheral part of the lens appeared like a brown grey granular exudation raised above the level of the central capsule. He thought this might be possibly a uniocular cataract which had undergone spontaneous shrinking, leaving organised lymph on the suspensory ligament.

The following specimens were shown:—

Mr. ROCKLIFFE: (1) Two specimens of Cystic Retina; some of the cysts were between the inner and outer nuclear layers and the others were difficult to locate owing to degeneration of the retina; and (2) specimens of Pseudo-Glioma.

Surgeon-Captain HERBERT: Specimens of Epithelial Xerosis of the Conjunctiva.

Mr. DEVEREUX MARSHALL and Mr. RIDLEY: Specimens of Persistent Hyaloid Artery with Atypical Development of the Vitreous.

Dr. G. H. HOGG: A case of Polyceria.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Exhibition of Specimens.—Catarrh of the Antrum.—Method of Prolonging Nitrous Oxide Anæsthesia for Dental Operations.

A MEETING of this society was held on May 2nd at 40, Leicester-square, W.C., Mr. W. E. HARDING being in the chair.

The CURATOR stated that he had received Two Mandibles (human) which had been dug up near Worthing and were supposed to be about 600 years old. He also stated that Mr. Whatford had presented to the museum models of the mouth of a young woman, aged seventeen years, showing Complete Absence of the Premolars, Maxillary and Mandibular.—The CURATOR also exhibited the Skull of a Young Adult Lion showing a maxillary canine the tip of which had only erupted. An examination of the tooth showed that it was distinctly stunted, the end of the root being formed of an irregular mass of tissue, probably osteo-dentine.

Mr. W. R. ACKLAND read notes on cases of Catarrh of the Antrum and in referring to the anatomy of the antrum stated that in 12 antra which he had examined he had found the opening into the nasal fossa completely closed in 4.

The HONORARY SECRETARY read for Mr. ALFRED COLEMAN a short note on a Method of Prolonging Nitrous Oxide Anæsthesia for Dental Operations. The apparatus used consists of a hood fitted so as to cover the nostrils; to this is attached a tube which is carried over the top of the head to a bag which rests at the back of the chair, the bag in its turn being connected with bottles containing the nitrous oxide. During administration slight pressure is kept up on the bag. In 15 cases recorded by Mr. Coleman a period of anæsthesia ranging from about one to five minutes had been obtained. The patients were specially selected, care being taken to administer to only those perfectly free from any nasal obstruction.—Dr. HEWITT and Dr. SILK took part in the discussion and pointed out some of the disadvantages of the system; while Mr. PATERSON expressed the opinion that the system of prolonging the anæsthesia was a good one and would undoubtedly prove of value in practice.

HARVEIAN SOCIETY OF LONDON.

100 Operations for Stone in the Bladder.

A MEETING of this society was held on April 28th, the President, Dr. JAMES F. GOODHART, being in the chair.

Mr. P. J. FREYER read a paper entitled, "A Recent Series of 100 Operations for Stone in the Bladder, with Some Practical Remarks Thereon," which will be found on p. 1319 of our present issue.

Mr. SWINFORD EDWARDS congratulated Mr. Freyer on the brilliant results of his last series and said that he was thoroughly in accord with everything that had fallen from his lips. Mr. Edwards remarked that though in skilled hands litholapaxy was easy of performance and gave the best results he considered that for surgeons who had not some experience in the operation complicated or difficult cases would be best treated by suprapubic lithotomy. He then touched upon some of the difficulties which might arise either in sounding, crushing, or evacuation, and pointed out the means for overcoming them. Mr. Edwards mentioned that in his own last 100 cases of litholapaxy there were 5 deaths, in 4 of which the fatal termination was due to advanced renal mischief.

The PRESIDENT asked whether Mr. Freyer ever met with stones which were impossible to crush on account of their hardness. He asked for details as to the method of washing out the bladder. In experiments on the cadaver he had sometimes found great difficulty in evacuating the bladder. He congratulated Mr. Freyer on the success of his treatment.

Surgeon-Colonel CALDECOTT spoke of the success which attended litholapaxy in India as compared with the results of other operative procedures.

Mr. TEMPLE MURSELL remarked upon the rapidity with which cases of vesical calculus complicated with cystitis of long standing recovered after litholapaxy without drainage and frequently without any further washing out of the bladder. With regard to calculi which resisted crushing it was very rare to find such cases, but in the few cases that were found or where the calculus had formed around a foreign body which could not be extracted through the urethra with the lithotrite suprapubic cystotomy could readily be performed by cutting on the point of the lithotrite still holding the calculus or foreign body pressed against the anterior bladder wall.

Mr. FREYER, in reply to questions by the PRESIDENT, said (1) that amongst several hundreds of cases of stone operated on by him in the last ten years, since he had become more or less expert with the lithotrite, he had only met with one stone that was too hard to crush, though the calculi had ranged up to 6½ oz. in weight. Strange to say, this was a comparatively small urate stone of 2 oz. in a female, on which his largest lithotrite (No. 13) could make no impression. He found, contrary to what was usually taught, that certain urate

stones are more difficult to crush than oxalates. (2) That a practised hand, as a rule, found no difficulty in clearing the bladder of the last fragments with a properly constructed aspirator. Experiments on the cadaver were deceptive, as the bladder did not expand and contract as in the living subject. There was no selection of cases, these 100 being the only bladder stones that came under his care during the period over which they extended. His success was not unique, as several surgeons in India had recorded similar series of 100 litholapaxies without a death, and he might point to the excellent results from this operation in St. Peter's Hospital, where last year they had had 51 litholapaxies with only 1 death. When stricture of the urethra was complicated with perineal fistula he (Mr. Freyer) preferred as a rule external to internal urethrotomy as more likely to cure the fistulæ, but he agreed with Mr. Swinford Edwards that internal urethrotomy might sometimes be preferable, particularly when there was only a single fistula. In fact, he (Mr. Freyer) had such a case at present under his care in private practice, where the fistula had rapidly closed after internal urethrotomy. He regretted to have to differ from his friend and colleague Mr. Edwards regarding suprapubic lithotomy, which he, Mr. Freyer, considered should be had recourse to only in exceptional cases, such as a very large and hard or encysted stone. It was true that the operation was simple and the requisite instruments might be found in a pocket-case, but in its very simplicity lay one of its chief dangers, as being tempting to the young and inexperienced surgeon not provided with litholapaxy instruments. He (Mr. Freyer) maintained, however, that an operation was to be judged, not by its simplicity, but by the mortality attending it, and Mr. Barling of Birmingham had recently[1] collected statistics from twelve large hospitals in London and the provinces, from which it appeared that suprapubic lithotomy in children had been attended by the appalling mortality of about 20 per cent., whereas lateral lithotomy and litholapaxy were attended by a mortality of less than 5 per cent.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Operation versus Taxis in Strangulated Hernia.—Surgical Treatment of Paralysis.

A MEETING of this society was held on May 6th, Dr. H. P. POTTER, President, being in the chair.

Mr. MCADAM ECCLES read a paper on Operation *versus* Taxis in Strangulated Hernia. By strangulated hernia he understood a hernia which contained bowel, the lumen of which was obstructed by pressure from without, either partially or completely, and at the same time this pressure caused an interference with the circulation through the vessels of the intestinal wall. Two lines of treatment offer themselves in such a condition, taxis or operation, either undertaken to procure the reduction of the gut with as little delay as possible. Against the employment of taxis, he said, might be urged the following facts:—1. Taxis may bruise, lacerate, or even rupture the bowel. 2. Taxis does not permit of a view of the intestine before reduction. 3. Taxis involves the return of fluid from the sac as well as the bowel, which fluid may be septic. 4. Taxis allows of no attempt to treat the hernia radically. 5. Taxis may bring about reduction *en masse*. Against operation, on the other hand, he cited:—1. Operation involves loss of time in preparing for it. 2. Operation usually requires a general anæsthetic. 3. Operation may cause a risk of septic peritonitis. 4. Operation necessitates confinement to bed. 5. Operation may cause the aperture to be enlarged. 6. Operation may be greatly objected to by the patient. Mr. Eccles gave it as his opinion that children with strangulated hernia should be but rarely subjected to operation, for the gut can nearly always be returned by gentle taxis and is seldom very acutely strangled. Again, old persons the subjects of chronic lung trouble should be treated, if feasible, by taxis alone. Almost all other cases of strangulated hernia he averred might be safely dealt with by operation and he considered that the old adage, "When in doubt operate," might be more widely extended.—Dr. F. H. ALDERSON entirely agreed with Mr. Eccles as to the rarity with which operation was required in the strangulated herniæ of infants.—Mr. KEETLEY alluded to the difference of taxis under various conditions, but gave it as his opinion that operation was indicated in nearly every case of strangulation.—Mr. G. E. TWYNAM thought it very doubtful that operation could be carried out with success in many cases where assistance was difficult to obtain. He thought that circumcision should always be performed in male infants who had strangulated herniæ with a view to the cure of the protrusion.—Mr. MALLAM inquired whether it was common to find that the fluid reduced by taxis gave rise to peritonitis.—Dr. R. D. BATTEN and the PRESIDENT having joined in the discussion, Mr. ECCLES replied.

Mr. A. H. TUBBY read a paper on the Surgical Treatment of Spastic and Infantile Paralysis. He said that the object of the paper was to show that certain cases of infantile spastic paralysis might be much benefited by the division of contracted structures and he further wished to bring forward some comparatively new features in the treatment of extreme cases of infantile paralysis. After describing types of cases of infantile paralysis he thought that the results of operation justified the surgical interference in these children. The method of treatment was to divide the tensor vaginæ femoris, the sartorius, and adductor tendons at their pelvic attachments, as well as the hamstrings and the iliotibial band at the knee, and to apply weight extension for a month, and then to sever the tendo Achillis and finally to maintain the rectification by means of a light apparatus. In the treatment of severe cases of infantile paralysis Mr. Tubby advocated tendon-grafting and arthrodesis. He pointed out the indications for, and limitation of, tendon-grafting. Arthrodesis on the ankle was in his opinion a successful method of dealing with the flail-like joints resulting from infantile paralysis and he described the mode in which the operation was performed.—Mr. MCADAM ECCLES congratulated Mr. Tubby on his paper. He asked him whether the length of the sartorius muscle in cases where it was implanted into the tendon of the quadriceps extensor was of much importance.—Mr. KEETLEY thought that much benefit arose in cases of spastic paraplegia by the division of contracted tendons. He was doubtful of the utility of arthrodesis of the hip-joint and he further questioned whether stiff knee- and ankle-joints were to be regarded as beneficial in many instances.—Mr. TUBBY replied.

[1] Brit. Med. Jour.

BIRKENHEAD MEDICAL SOCIETY.

Rectal Disease.

A MEETING of this society was held on April 15th, the President, Dr. R. SYDNEY MARSDEN, being in the chair.

Dr. W. H. ANDERSON read clinical notes and showed a specimen of Perforating Gastric Ulcer.

Mr. MITCHELL BANKS read a paper on Practical Experiences in Rectal Disease. With regard to the operation to be employed for the destruction or removal of hæmorrhoids he thought there were three or four means which might each be employed with advantage by a surgeon who had familiarised himself with one particular method and had acquired dexterity in its use. For himself he had been a consistent advocate of the clamp and cautery operation introduced by Mr. Henry Smith and had certainly done it some two or three hundred times at the lowest estimate. What greatly induced him to adhere to it was the remarkably satisfactory results which followed, for never once had a patient come back with a return of his hæmorrhoids. Whatever drawbacks might be urged against the operation he was absolutely certain of its permanently curative effect if properly done. After the operation he was in the habit of tying into the bowel a short flanged glass tube. This allowed the passage of flatus, which was one of the things which often greatly worried patients for the first twenty-four hours. It, moreover, enabled the blood to escape if any secondary hæmorrhages occurred and so warning was given. He had heard surgeons state that they never had such a thing as secondary bleeding. He could only say that if they went on operating long enough their unfortunate case would at last turn up. To minimise the danger of this after clamping the hæmorrhoid he rarely cut it off, but slowly frizzled it up into a leathery state by repeated applications of the cautery at not too great a heat. Coming to the subject of the removal of

the rectum for cancer by Kraske's method his experience of it made him think that it was one of the most valuable operations for cancerous disease of recent origin because the sacral glands did not seem to be so early affected as in many other parts of the body and so a chance was given for immunity to follow free local extirpation. Operations for cancer of the tongue and mouth generally were most disheartening from the early involvement of the cervical glands, and he thought a great deal of ingenuity and labour were being thrown away over attempts to remove cancer of the stomach and pylorus where recovery—followed by subsequent immunity—was such a rare startling occurrence that it only showed how few were the really successful results. What was so remarkable in the modern rectal operations was that one might pull down even the sigmoid flexure into the wound, while the opening of the peritoneum seemed to be productive of very little danger. His own view was against a preliminary colotomy. As a rule a patient required every particle of strength to stand up against an extensive removal of the rectum, for the bleeding alone at the time of operation was often most alarming. Of course some time would yet have to elapse before the full value of the operation was known, but he could mention the case of a woman who was well and managing the affairs of a considerable household eight years after the operation and of a man who was actively doing the work of surveyor to a marine insurance company after three years. Both were quite free from return. Mr. Banks next drew attention to certain very severe cases of pruritus, which defied all ordinary remedies and which reduced the patients to the most miserable condition. He instanced three patients, of whom one was a merchant in a large way of business who at length was quite unable to attend to it and another a man who came all the way to England from South Africa in search of relief from his complaint. They were all permanently cured by a smart application of the actual cautery around the anus and for a short distance within it.

A hearty vote of thanks was accorded to Mr. Banks for his interesting paper.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Surgical Instruments and Apparatus.—Presidential Address.

THE seventh and last meeting of the session of this society was held on May 6th at the Royal Kent Infirmary, the President, Mr. W. ARBUTHNOT LANE, being in the chair.

Before the meeting Messrs. Maw, Son, and Thompson gave an exhibition of Surgical Instruments and Apparatus.—Dr. Prior Purvis was unanimously elected as an honorary member.

Mr. ARBUTHNOT LANE delivered an address on the Principles that should Guide us in Operations for Malignant Diseases. He pointed out that the two chief indications were the complete removal of the growth at all costs, modified, of course, by the wishes of the patient, who must be made fully aware of the risks and advantages associated with any particular procedure, and the ensuring to the patient of a minimum of discomfort and pain in consequence of the operation. Mr. Lane illustrated his meaning by descriptions of operative measures for the removal of the larynx, tongue, breast and rectum, which were based on the application of these two principles.—Mr. LANE then read a paper on the Treatment of Ununited Fractures by Steel Screws, illustrating the cases by radiographs.

Mr. BIDWELL, Dr. DOCKRELL, and Dr. TOOGOOD discussed the papers and Mr. LANE replied.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.—The Acute Pneumonia of Childhood.—Paroxysmus Podagræ.

THE seventh ordinary meeting of this society was held on May 4th, Dr. JAMES CARMICHAEL being in the chair.

Dr. SCOTT SKIRVING exhibited a boy, aged five and a half years, after operation for Ectopic Perineal Testicle. The history was that a month previously he had received a kick from another boy on the perineum. Three weeks later pain on micturition was complained of in the mornings. A swelling was then noticed on the right side of the perineum extending from the margin of the scrotum nearly to the anus. The testicle on the left side was wanting. The swelling was cut down upon and a condition resembling ordinary congenital hernia was met with, without the presence of gut, however. There was a free communication with the abdominal cavity. The sac in its descent had entirely missed the scrotum and had wandered into the perineum. It was found impossible to place the testicle in the scrotum. It was therefore removed and a radical cure effected. The tunica vaginalis was considerably thickened.

Dr. WILLIAM TAYLOR exhibited an Electro-thermogen devised by himself and used in the case of neuralgia. Dr. Taylor had suffered himself from neuralgia and found that superficial remedies had only a transient effect. Dry heat alone allayed the pain for a time. He argued that if a damp, cold air current caused the affection then a hot, dry air current might cure it, so he set himself to devise an instrument to generate a hot stream of dry air. A long coil of brass tube was first tried. This was heated by a gas jet and air was pumped through it by a bellows. Such an arrangement is expensive and soon becomes too hot to be handled. Dr. Taylor then devised his electro-thermogen. There is a metallic base which contains clock-work, which causes an air-fan to rotate in order to produce the current. Above this is a chamber into which a glass tube, suitably bent to direct the current, is inserted. Inside this tube is another smaller glass tube around which a platinum wire is coiled in a wide spiral. An electric current is made to traverse this coil and so the air as it passes through the tube is suitably heated. A suitable current is got from the ordinary electric mains. This machine has been found very useful in the treatment of neuralgia. It sometimes produces a blister, however, and Dr. Taylor was surprised at the amount of thermal anæsthesia which it produced. Several cases of neuralgia were related where cures were effected after a single or at most only a few applications. In toothache and twitching of the face it had also shown good results. As a vapouriser it was also useful and in a case of gouty asthma and clergyman's sore throat it had proved of service. A large form of the apparatus was also shown for the treatment of lumbago, torticollis, &c.

Dr. JAMES CARMICHAEL contributed a paper on Acute Pneumonia of Childhood. He noted that the etiology of the disease in children was the same as in the adult and yet the clinical symptoms were widely different. The terms "lobar" and "lobular" were serviceable but gave no information as to the real pathological conditions which were present. Bacteriology had thrown much light on this disease and on its infective nature. Bacteria or the toxins produced by them give rise to the chief symptoms and to the endangering of life. This was shown by the frequency of cerebral symptoms together with the slightness of the pathological conditions present in many cases. In pneumonia the disease is short and the crisis is well marked. Is this due to the short life-history of the organism or to antitoxins which are readily formed? Dr. Carmichael then proceeded to give a detailed classification of the acute forms of pneumonia founded on their pathology and bacteriology. The bacteriology of the disease was next discussed, and Netter was quoted as having found in 42 cases (of which 25 were primary) 10 cases in which Friedländer's pneumococcus was present; streptococci in 8 cases alone; staphylococci in 5; and Fränckel's capsuled coccus in 2. In 17 there was a mixed infection. In secondary cases of pneumonia the micro-organisms are still more numerous—streptococci and staphylococci pneumoniæ—showing a mixed infection. In the pneumonia of influenza Pfeiffer's bacillus and others have been observed as well as the bacterium coli commune. In pneumonia as a result of diphtheria Löffler's bacillus alone or along with other organisms has been found. Dr. Carmichael then described fully the pathological anatomy of the disease as regards the distribution of 142 hospital cases which he had himself observed and all of which had recovered; 107 showed features of a catarrhal nature and all occurred among children under five years of age; 35 cases were of the fibrinous variety. In 83 of the catarrhal cases the termination was by lysis, while in 24 there was more or less decided crisis. In 53 cases both lungs were affected. As regards the clinical aspect primary acute pneumonia is usually epidemic and this is well seen in hospital work. It is highly probable that

it is infectious, but he had found no proof of this from his own observations. There had been a very large number of cases admitted to his wards during the last six months. Catarrhal pneumonia is a disease essentially of infant life. In duration it varies from ten days to many weeks, chronicity being frequent and tuberculosis not uncommon as a result. Pleurisy is usually present to a greater or less extent and is usually localised. The physical signs are well defined and regular. The temperature rises and remains so until the fifth or seventh day, when the crisis occurs. If it does not then fall the opposite lung has become involved or there has been an increase of the pleural exudate. Pneumonic fever is a good name for catarrhal pneumonia. All forms of pneumonia are due to a common cause. Why should the catarrhal form be found in children under five years and the fibrinous variety in older children or adults? In infants the minute bronchi and alveoli are the most delicate parts of the lung. The alveoli are not developed at the fifth month of fœtal life, and it is not until the fourth or fifth year that they are fully developed. Prior to this period they are much smaller and the walls are relatively thicker; the vessels are very abundant and the epithelial cells are very numerous and readily proliferating. Here is a ready explanation of the pathological condition produced by the disease. The greater vascularity of the walls, the immature nature of the epithelial cells, and the presence of interstitial cells all present less immunity to the infective process. The anatomical conditions thus differ from those of the adult. There are three types of catarrhal pneumonia: (1) those without signs; (2) small areas of consolidation—lobular distribution; and (3) large areas of distribution—lobar. The symptoms are much more constant than the physical signs. They form a marked similarity in different varieties enabling the physician to diagnose the case without physical examination. The mere inspection and history allow of a probable diagnosis. Of the means of physical examination auscultation is by far the most reliable. Percussion is unreliable unless large areas are involved. One ought to examine carefully with the stethoscope every part of the chest, as the area involved may be very small and just under the end of the instrument. Auscultation must be relied on for diagnosis. The breathing is broncho-vesicular with sometimes few or no râles over the centre of the area. The adventitious signs are most distinct over the periphery of the areas. 95 per cent. of the fibrinous cases recover, while there is a mortality of 60 per cent. in the catarrhal. As there has not yet been discovered an antitoxin no special treatment exists for acute pneumonia. Hygiene and diet are all important. The use of a tent bed with towels moistened in an antiseptic solution as creasote are the means used by Dr. Carmichael. In severe cases with cyanosis he has found benefit from inhalations of oxygen. Poulticing is now discarded, but stimulating applications rubbed over the chest for half an hour or a pneumonia jacket of Gamgee he has found beneficial. Local and general diaphoresis relieve the lungs. As regards drugs none is of any special value. Liquor ammoniæ acetatis and spiritus ætheris nitrosi together with alcoholic stimulation are of great value, specially in broncho-pneumonia; strychnine given with alcohol has been of great use and seems to act better with infants than with adults. Belladonna also greatly benefits infants when employed during the early stages of the disease. It is, however, of no use during the later stages. Digitalis should not be used as a routine drug but only in special circumstances. Large doses of antipyretics are contra-indicated and are often harmful. In small doses they are useful in allaying restlessness. Hyperpyrexia is best treated by the cold pack or bath. As regards expectorants, vinum ipecacuanhæ, squills, tartar emetic, &c, are still largely used, but in Dr. Carmichael's opinion harmfully. Children require stimulation and not depressants.

Dr. GEORGE W. BALFOUR next read a paper entitled "A Fit of Gout (Paroxysmus Podagræ): a Pathological Study." He noted the pathological points observable during an attack, drawing attention to the facts that it differed from ordinary inflammation in never ending in suppuration. The veins of the joint become turgid at an early period and cause attention to be first drawn to the part. The turgescence of these veins lasts until the seizure is over. Instead of there being heat in the joint so affected its temperature is subnormal. The urate of sodium which infiltrates the tissues shows that it is a specific form of inflammation. Dr. Balfour went on to show that a thrombosis of the small vessels of the joint would explain all the symptoms and thought that the lowering of temperature of the part was due to the stasis of the circulation. As regards the prophylaxis the attack may frequently be warded off by exercise. Walking may help to break up the thrombi already beginning to form and so lessen the risk of an attack. In cases where the attack has already begun friction and compression are of great value.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

Serum Diagnosis of Typhoid Fever.—Mortality of Children.

A MEETING of this society was held on April 29th, Dr. H. C. TWEEDY, the President, being in the chair.

Dr. MCWEENEY demonstrated a Modification of the Serum Reaction in Typhoid Fever which he had introduced with a view to clear up the diagnosis in cases which did not give the agglutination phenomenon with sufficient distinctness. He causes the typhoid bacillus to grow in a hanging drop of broth containing a small percentage (generally 1 per cent.) of the suspected serum. After four hours at 37° C. the preparation is examined, when, should the serum be from a typhoid case, the bacilli will be found to have grown out into beautiful chains which at the end of twenty-four hours are exquisitely twisted and convoluted; motility is quite absent. If, on the other hand, the serum is non-typhoid the bacilli are separate and freely motile. They are usually short, but occasionally grow out into filaments especially if the temperature is low; but these filaments must be carefully distinguished from the chaining which takes place with the homologous serum.

Dr. LANGFORD SYMES contributed a paper on the Mortality of Children in Ireland. From his estimate of ten years ending Dec. 31st, 1896, it appears that in Dublin city out of every 1000 children born there die in the first year 171·2; and in every 1000 total deaths, 306·2 are children under five years of age. In Belfast the death-rate of children is enormous. In every 1000 total deaths in that city, no less than 519·8 are those of children under five years of age. Of the actual registered causes of death for all children in the whole of Ireland the following were the eleven chief diseases found to produce this infantile mortality in their order of importance. They are identically the same diseases for both ages, but in varying proportions:—

UNDER ONE YEAR.		UNDER FIVE YEARS.	
Cause of death.	Deaths under 1 year.	Cause of death.	Deaths under 5 years.
1. Debility, atrophy, inanition	29,136	1. Debility, atrophy, inanition	32,062
2. Convulsions	20,764	2. Convulsions	25,261
3. Bronchitis	14,017	3. Bronchitis	24,775
4. Diarrhœa & dysentery	5,762	4. Whooping-cough ...	11,456
5. Whooping cough... ...	4,895	5. Diarrhœa & dysentery	8,385
6. Premature birth	3,827	6. Tabes mesenterica ...	7,564
7. Tabes mesenterica ...	3,542	7. Measles	7,557
8. Pneumonia	2,519	8. Pneumonia	6,868
9. Tuberculous meningitis	1,755	9. Croup	5,509
10. Measles	1,691	10. Tuberculous meningitis	5,069
11. Croup	1,589	11. Premature birth	3,827

Dr. Symes pointed out that the terms "debility, atrophy, inanition" were too indefinite for a medical certificate and that the word "convulsions" denotes a symptom rather than a disease.—Dr. GRIMSHAW (Registrar-General), Dr. DOYLE, Dr. FALKINER, Mr. TURNER, and the PRESIDENT took part in the subsequent discussion.

ERRATA.—In Mr. W. G. Spencer's case of Gangrenous Appendicitis described in THE LANCET of May 7th, p. 1258, it should have been stated that the patient had "no previous attacks" of pain. The case of Empyema said on p. 1259 to have been shown by Mr. Spencer was shown by Dr. de Havilland Hall.

ABERDEEN UNIVERSITY CLUB, LONDON.—The annual meeting and May dinner of this club will be held in the Holborn Restaurant, on May 18th, at 7 P.M. The chair will be taken by Colonel Sir William S. Bissett, R.E., K.C.I.E. Members desiring to be present are requested to communicate with the hon. secretaries, Mr. J. Gerard Laing, 2, Brick-court, Temple, E.C., and Dr. James Galloway, 54, Harley-street, W.

Reviews and Notices of Books.

Abdominal Surgery. By J. GREIG SMITH, M.A., M.B., C.M. Aberd., F.R.S. Edin., Surgeon to the Bristol Royal Infirmary, Professor of Surgery, University College, Bristol. Sixth Edition. Edited by JAMES SWAIN, M.S., M.D Lond., F.R.C.S. Eng., Professor of Surgery, University College, Bristol, Assistant Surgeon to the Bristol Royal Infirmary. Bristol: J. W. Arrowsmith. London: J. & A. Churchill. 1897.

THE editor tells us in the preface that in less than a year from the publication of the fifth edition of this work it became necessary to issue a sixth, so that little change in the text has been necessary, though he has endeavoured to keep the book abreast of any advance in the subject. The present edition has been prepared almost entirely by Mr. Swain, as he tells us that scarcely a hundred pages of it had been set up before the lamented death of Mr. Greig Smith took place. Mr. Swain had, however, evidently done much of the work required for the preparation of the fifth edition, and besides has this additional qualification for editing the present edition—that he constantly assisted Mr. Greig Smith both in private practice and at the Bristol Royal Infirmary. When a book has reached a sixth edition its position is generally assured, and little notice of it is needed at the hands of the reviewer, but we may say that we think the book deserves its success and that it has rightly come to be regarded as a standard work on the subject of which it treats. Surely, however, in the preliminary chapter on the Diagnosis of Abdominal Tumours more space should have been given to the consideration of the commonest of all abdominal "tumours"—namely, the pregnant uterus at its various stages of development. All those who have had a large experience in abdominal cases know how frequently mistakes are made in regard to pregnancy. Such mistakes may almost always be avoided by keeping the possibility of pregnancy in mind and carefully looking for the various signs of that condition. But here the matter is dismissed in a few lines. We may add that in the description of total hysterectomy for fibroids the writer does not appear to be familiar with Mr. Christopher Martin's paper on the subject. According to the method there described there is no need for suturing the vaginal vault; a gauze drain is merely pulled through from above and about an inch of the gauze is left projecting into the peritoneal cavity.

A Manual of Dental Anatomy, Human and Comparative. By CHARLES S. TOMES, M.A., F.R.S. With 263 Illustrations. Fifth edition. London: J. & A. Churchill. 1898. Pp. 586, with Index. Price 14*s*.

THE fifth edition of this standard work on Dental Anatomy has been brought thoroughly up to date and is a distinct advance on any of the previous editions. At first written with a view of providing the dental student with the requisite knowledge for his qualifying examination it has since become a text-book for the student of biology in general. This fact, combined with the rapidly increasing literature on the subject, has, as the author points out, "greatly enhanced the difficulty of bringing the book up to date." It is, however, needless to say that the work of editing has been carried out in an admirable way. In the chapters on Enamel and Dentine, more especially the former, there is much that is new, and in both these chapters a number of new illustrations have been introduced. The chemistry of the tooth tissues has been more fully dealt with than in former editions, and it is interesting to note that the author's investigations go to show that enamel is practically devoid of organic matter, the portion previously considered to be organic being in reality water; while in the dentine a large portion of the previously supposed organic matter is really water held in chemical combination with the lime salt. The chapter on Calcification also contains a large amount of fresh matter in addition to new illustrations. The portion of the book which includes Comparative Odontology includes an account of all fresh knowledge that has accumulated since the fourth edition. If we might make a suggestion it would be that in future editions the chapters on the Pulp and Alveolo-dental Membrane should be more fully illustrated.

Twentieth Century Practice of Medicine. Edited by THOMAS STEDMAN, M.D. Vol. XI., Diseases of the Nervous System. London: Sampson Low, Marston and Co. 1897.

THE list of writers in this most comprehensive work is one which ensures interesting and valuable contributions. It includes Dr. Lloyd, who occupies almost half the volume with an account of the Diseases of the Nerves—Cerebral, Spinal, and Sympathetic; Dr. Bruns of Hanover and Dr. Windscheid of Leipsic, who write on Diseases of the Spinal Cord; Professor Möbius whose article on Tabes Dorsalis is a valuable feature of the volume; Dr. Dercum and Dr. Mills, who between them are responsible for the account of the Trophoneuroses; Professor Strümpell, who contributes a short article on the Combined System Diseases of the Cord; and Dr. Witmer, who is charged with the psychological work.

Dr. Lloyd's article on Diseases of the Nerves is, as we have said, of considerable length, but it is admirable in every respect, dealing fairly with the physiology so far as it is necessary and with the various general pathological conditions affecting nerve trunks, and considering also almost every nerve which is liable to isolated disease. The section dealing with the optic nerve is a particularly good one; in those dealing with the third, fourth, and sixth we miss the usual elaborate descriptions and puzzling diagrams of the different varieties of diplopia, and in that dealing with the olfactory nerve the author has omitted to mention the not infrequent anosmia which arises, presumably as a result of pressure in certain cases of intracranial tumour. It would be an invidious task to pick out small blemishes in such an article as Dr. Lloyd's, however, and we venture to think that it will remain for some time the most authoritative pronouncement on its own subject.

It seems hardly necessary for the Trophoneuroses to have been divided up as they have been. Dr. Mills takes all the trophoneuroses except scleroderma, acromegaly, and adiposis dolorosa which are allotted to Dr. Dercum. Among Dr. Mills's subjects is facial hemiatrophy and, considering the close connexion of this condition with morphœa and scleroderma, it seems a pity that these conditions should not have been dealt with by the same writer. The articles, however, in both sections are very complete.

Dr. Bruns' and Dr. Windscheid's section on Spinal Cord Diseases is one of the most important in the volume. The section dealing with injuries is particularly good, but one statement, which requires explanation, arrested our attention, viz.—"It (a lesion) is sure to be fatal when with lesions in the dorsal and cervical cord the tendon reflexes remain absent beyond the time of a possible effect of shock and the paralysis of the leg continues flaccid." It is now well established that the reflexes may be absent for months and yet return and it can scarcely be claimed that the effects of shock persist during that time. Amongst the other articles in this section which strike the reader as particularly good are those on tumours of the cord and meninges, and on myelitis.

Professor Möbius's article on Tabes Dorsalis is a valuable

contribution to the volume. It is characterised by profound and accurate knowledge and by philosophical breadth of view and it is particularly sound in reference to treatment.

Professor Strümpell's article on the Combined System Diseases is distinctly disappointing. Dr. Witmer's treatment of the psycho-physiological problem resolves itself into an interesting dissertation on the nature of pain and other abnormal sensations. The volume is illustrated, but not profusely, and the pictures are not all worthy of the text.

A Manual on Dental Metallurgy. By ERNEST A. SMITH. Illustrated. London: J. & A. Churchill. 1898. Pp. 272. Price 6*s.* 6*d.*

THIS excellent little book will fill a want long felt and is designed primarily for students preparing for the dental examination, the subject matter being largely based on the new syllabus of dental metallurgy issued by the Royal College of Surgeons of England. The opening chapter contains a concise account of the physical properties of the metals; then follows an account of the action of certain agents on metals, and in Chapter III. an account of "alloys" including their properties and preparation is given. The metals in common use in dental practice are each described and a special chapter is devoted to the question of Dental Amalgams. With a view of rendering the book as practical as possible the author has enumerated a list of 100 experiments which may readily be carried out in a well-equipped dental laboratory, and anyone faithfully carrying out this list cannot fail to obtain a good and clear insight into the working of the various metals treated. There is a useful appendix containing information as to atomic weight, metrical measures of weight, capacity, &c.

LIBRARY TABLE.

Llangammarch Wells as a Health Resort. By W. BLACK JONES, M.D., B.S. Lond., D.P.H.—Dr. Black Jones is the resident physician to the Llangammarch Wells and so has exceptional opportunities of observing the action of the waters on patients who undergo the treatment. The most interesting constituent of these waters is a salt of barium and a full analysis was published in THE LANCET of Nov. 24th, 1894. Numerous patients suffering from dilated heart have received benefit from the use of these waters, which have also been found useful in other pathological conditions, such as gout, rheumatism, and lithæmia. From Dr. Black Jones's account of the place it would appear to be equal in attractiveness to many more distant and expensive foreign health resorts.

Allgemeine Physiologie: Ein Grundriss der Lehre von Leben. Von MAX VERWORN. Zweite Auflage. Jena: G. Fischer. (*General Physiology: An Outline of the Science of Life.* By MAX VERWORN. Second edition. Jena: G. Fischer. 1897. Price 15*s.*)—We need do little more than direct attention to the publication of a second edition of this thoughtful and remarkable work which was fully noticed in these columns on its first appearance. Its general purport is to solve the riddle of existence by reference to known facts of the nature of living matter, speculations as to its origin, and the teachings of physiological science as to its properties and phenomena. The merit of the work is that it does not deal with the subject in the abstruse manner which is deemed by some necessary to the exposition of themes of this order, but that it brings the latest teachings of science clearly and succinctly before the reader. So that in a sense it may be said to be of the class of "popular scientific" writings, which after all is no disparagement, since if science is incapable of being made plain to the multitude it is of small practical value. We learn from the preface that an English translation is in preparation and we have no doubt that the book is one which will then become more widely known in this country than it is at present.

JOURNALS.

The Practitioner for May has a delightful quotation from a French medical journal which the editor brings forward as an example of style. We have seen nothing like it since the gems which used to appear in the now, we believe, defunct *United Ireland* in the early "eighties." Dr. R. Farquharson contributes a very readable paper on the Treatment of Acute Disease from the Patient's Point of View which throws some light upon the practice of bygone practitioners, and Dr. D. J. Leech considers the Treatment of Bronchitis by Drugs. A very general mistake is, he thinks, to give diaphoretics and stimulants such as carbonate of ammonia in too small doses. He points out that in the new Pharmacopœia the dose of the liquor ammonii acetatis is given as up to six drachms. That admirable physician, the late James Andrew, used always to say that for a cold or to get relief in bronchitis there was nothing like "a good drink of H.A.A.," the "haustus ammonii acetatis" of the St. Bartholomew's Hospital Pharmacopœia.

The Journal of Physiology. Edited by MICHAEL FOSTER, M.D. Lond., F.R.S., and J. N. LANGLEY, Sc.D., F.R.S. Vol. XXII., No. 6. London: C. J. Clay and Sons. April, 1898. Price 5*s.*—This number completes the twenty-second volume of the Journal and contains, in addition to the Proceedings of the Physiological Society, the following articles: 1. O. F. F. Grünbaum on Intermittent Stimulation of the Retina (part ii., with 5 figures in the text). The author shows *inter alia* that on increasing the intensity of an intermittent stimulus beyond a certain point a further increase in intensity allows a decrease in frequency without destroying the sensation of fusion. 2. On Urobilin (part ii.)—The Percentage Composition of Urobilin, by F. Gowland Hopkins, M.B., B.Sc. Lond., F.I.C., and Archibald E. Garrod, M.A., M.D. Oxon., F.R.C.P. Lond. They find the percentage composition of urobilin to be C 63·58 H 7·84, N 4·11. 3. Some Improved Methods of Gas Analysis, by John Haldane, M.D. Edin., F.R.S. (with 6 figures in the text). 4. Contributions to the Physiology of Unstriated Muscular Tissue (part iv.)—The Action of Electrical Stimuli upon the Œsophagus of Aplysia depilans and Aplysia limacina, by Dr. Philip Botazzi, Docent of Physiology in Florence. The movements referred to seem to be purely myogenic and resemble those of the heart, but there is no refractory period. No nerve cells can be demonstrated histologically in the œsophagus of these animals.

In the *Phonographic Record* for May Sir William Gowers condemns the treatment of syphilis by remedies given continuously over a long period. He says that mercury should be given for from four to six weeks after the gums are affected by it, when iodide may be given systematically for four months during the first year and then every six months for three weeks for three or four years after the first symptoms. Mr. Peyton Beale puts forward a plea for the use of the horseshoe pad in hernial trusses; there is a well-reported clinical lecture on a Case of Pseudo-hypertrophic Muscular Paralysis, as well as short notes on the Duration of the Lead Line on the Gums and a Case of Spontaneous Cure of a Ranula.

ROYAL INSTITUTION.—On Friday evening, May 6th, Mr. E. A. Minchin delivered a discourse on Living Crystals, meaning thereby the spicules of calcium carbonate embedded in various species of sponge. The optical phenomena produced when those spicules are examined by polarised light are similar to those obtained with the mineral calcite.

THE LANCET.

LONDON: SATURDAY, MAY 14, 1898.

WE need not apologise for reverting to the highly important announcement made by the Secretary of State for War at the banquet given by the Lord Mayor to the medical profession at the Mansion House last week. The nation—as well as the officers of the Army Medical Staff and the profession generally—has, in our opinion, to be congratulated on the generous and statesmanlike policy so unequivocally enunciated by Lord LANSDOWNE on that occasion, for we are living at a time when "wars and rumours of wars" abound, and this country has always to be on the alert to maintain her position in the international struggle for existence. There are, moreover, few households or families which have not some member connected either with the army or the navy and it is consequently a matter of national concern that both of them should possess thoroughly efficient medical services not merely in times of war, when everyone recognises the necessity of sound surgical skill promptly applied, but in times of peace, particularly at remote and outlying stations where no other medical help is available. The functions of army medical officers do not merely embrace the treatment of disease and its prevention, but upon them is laid the entire charge of the sick and wounded, their succour and surgical aid in the field, their transport and the organisation of hospitals for their reception, in addition to the discharge of administrative and disciplinary duties of an extensive and complicated character. It cannot be denied that these are weighty and responsible duties, calling for high qualifications on the part of those undertaking them. For many years past it has been notorious that, although no complaint has been made about the pecuniary inducements offered by the army medical service, it has, nevertheless, failed to attract either a sufficient number of medical candidates or those of the right stamp. We earnestly hope and believe that that time is past. There is no need to go into the causes or the conditions which rendered the army medical service distasteful, seeing that Lord LANSDOWNE has now happily promised to alter all this and has determined, as he said, that there shall be no failure either in theory or in practice to treat medical officers with all the respect to which they are entitled.

Lord LANSDOWNE has proposed to make a fresh start and to form a consolidated army medical corps by welding together the Army Medical Staff and the Medical Staff Corps under the title, by HER MAJESTY'S command, of the "Royal Army Medical Corps." The officers of the newly-formed corps are to have actual army rank and are to bear exactly the same military titles as other officers of the army up to the rank of colonel, with the reservation—a perfectly reasonable one under the circumstances—that above that rank the compound and distinctive title of "Surgeon-General" shall be adopted, but carrying with it the rank and precedence of a general officer in the army. Sir SAMUEL WILKS and Sir WILLIAM MACCORMAC, the respective Presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England, both spoke in highly appreciative terms of Lord LANSDOWNE'S announced intentions regarding the Army Medical Service. Sir WILLIAM MACCORMAC in particular expressed himself very clearly and emphatically on this point and he is in an excellent position to form an accurate and just judgment in regard to it, for he has had exceptional opportunities of knowing the requirements of the army medical officers. On a memorable occasion long ago he most successfully vindicated their labours and placed on record the admirable results which followed them in the Egyptian campaign of 1882. We have no doubt also that should Sir WILLIAM THOMSON, the President of the Royal College of Surgeons in Ireland, express his opinion upon the nature and extent of the Secretary of State's concessions he will entirely endorse the views which have been expressed on this side of St. George's Channel. Nothing could have been better than the frank and generous tone in which Lord LANSDOWNE recognised the great value of the services performed by medical officers, and the share which they took in all the risks and hardships of war. He has, in our opinion, dealt with their grievances in a wise and statesmanlike spirit and has yielded all that can be reasonably demanded to make their position secure and satisfactory. It should not be forgotten, too, that in a number of other respects several important and much needed changes have also been introduced of late in the interest of the Army Medical Staff. Assuming, then, that the declared intentions of the War Minister are to be embodied and promulgated in authoritative official form, as they undoubtedly will be, we need scarcely ask ourselves what should be the position of the profession in regard to the new order of things.

We can have no hesitation in declaring that the members of the Army Medical Staff should accept these concessions in a sincere and honest spirit and that our medical schools and the universities and the profession generally should do all in their power to make the new Royal Army Medical Corps a success. To become an officer of such a corps is a worthy object of ambition. The prospect of seeing the world, of taking part in the dramatic and chequered scenes of military life and adventure, and the probable opportunity of attaining rank and titular distinction, will always have attractions for the young, the healthy, and the enterprising. The military position of medical officers will henceforth be as good and secure as it can be made officially, and as regards social status it must always be borne in mind that every officer's position, to whatever branch of the service he may belong, must depend upon himself. It is beyond the power of any Government to confer personal qualities by any mere titular rank or distinction. All that a Government can do is to insure that a young medical officer shall occupy as good a position as any other officer of corresponding rank; for the rest he must depend upon himself. The

medical service is now an integral part of the army and the medical officer's position is henceforth to become a thoroughly recognised and established part of the military machine. This being so it is for the members of that service to show that they are proud of their medical calling and ambitious of success in the exercise of it for the benefit of all committed to their care and thereby to prove how groundless and calumnious have been the fears of those who have asserted that should the desired concessions be granted their professional duties would not be, as they assuredly should be, the first and dominating consideration. It stands to reason that commanding officers and others are only too glad to have the services of really capable medical officers for the care of themselves and the men serving under them; and as regards the latter—the rank and file of the British army—TOMMY ATKINS is never backward in recognising and in gratefully appreciating the services of those on whom he can confidently rely when he is sick or wounded. Very many years have elapsed since THE LANCET first advocated the formation of a Royal Medical Corps for the army on the lines of the Royal Engineers. This has now been accomplished and we feel assured that medical officers and the profession in general will do all in their power to aid Lord LANSDOWNE in carrying out his policy to a successful issue.

THE Lunacy Bill was read a second time in the House of Lords on Thursday, May 5th. The remarks of the Lord Chancellor in moving the second reading were conciliatory in character and indicated an evident desire on the part of the Government that the Bill should pass into law during the present session. The Bill is substantially the same as that of last year, and with few exceptions no material alteration is to be detected in its main features. Some improvements are, however, noticeable. Clause 29 of last year's Bill, with its ridiculous enactments of fine and imprisonment, has been swept away. Asylum officials are therefore no longer confronted with the remote contingency of penal custody *plus* hard labour on account of the occurrence of a clerical error in a certificate. The clause in question was so loosely drafted that no clear distinction was made between wilful mis-statement and negligence. There still appears to exist a lurking belief that the safeguards for preventing the disappearance of presumably sane persons within the walls of a lunatic asylum are not quite efficacious. This applies more particularly to the employment of urgency orders. The alleged abuse of these orders in certain cases was alluded to in condemnatory terms during the second reading debate in the Upper House. No laxity in respect to these urgency orders is likely to occur in future, for the Bill enacts that the certifying person shall be held responsible for any mis-statement and shall be compelled to state his reasons for the necessity of the order on the face of the certificate. It is well known that many medical men are averse to signing lunacy certificates of any description, and it is very questionable whether this stringent provision will conduce to the speedy removal and safe custody of dangerous homicidal and suicidal patients. The duration of an urgency order will in future be four days, instead of seven days as hitherto.

Not unnaturally the interest and attention of asylum officials will centre round the superannuation clauses. In the Bill of 1897 it was proposed to make the pension scale similar to that of the Poor-law Officers Superannuation Act, 1896. This caused great dissatisfaction, and the opposition aroused was so strong that it may be said to have led to the withdrawal of the Bill last session. The step undoubtedly was a retrograde one, and the result of its adoption could only have been to lower the general efficiency of the service. The tenour of the clauses of the present Bill is distinctly more satisfactory. The main point is that pensions are made obligatory. (The same held good in last year's Bill.) The scale of the Poor-law Officers Superannuation Act, 1896, is adhered to, but only as a minimum. In the second reading debate the Lord Chancellor was careful to point out that this minimum was only offered as a suggestion, and, by inference, that it was capable of adjustment. Good grounds therefore exist for hoping that it will be raised. By the provisions of the Bill a discretionary power seems to be vested in the visiting committees of asylums to increase the amount of pension over and above the minimum stated. It would be well if they were authorised to grant retiring allowances to their officers after fifteen years' service. On account of the peculiar nature of their duties, and the painful consequences which sometimes ensue from prolonged and close association with the insane, the medical officers of asylums have strong grounds for claiming this privilege—indeed, the Select Committee of the House of Commons, in 1860, upheld this contention. Twenty-five, or at the most thirty years' continuous service, not necessarily in the same asylum, should entitle them to a maximum superannuation allowance not exceeding two-thirds of their total pay and emoluments. A fixed scale of pension has been advocated in certain quarters—viz., one-fortieth of the total pay and allowances for each year of service to those whose duties bring them into constant and direct contact with the insane, and one-fiftieth to other officers and servants—the recipients, except in the case of incapacity from confirmed illness or infirmity, to be not less than fifty years of age, and to have at least fifteen years' service; no pension to exceed two-thirds of the total pay, &c. In the event of any fixed scale being formulated, this scheme is deserving of serious consideration. Failing the adoption of a fixed and uniform scale, the discretionary power laid down in the Bill, which allows visiting committees to increase the amount of pension at their pleasure, is likely to find most favour with those concerned. The permissive principle has worked very well in the past, with few exceptions, and asylum officials, with the certainty of assured pensions in the future, will doubtless be content to trust to the sense of fairness and justice of the visiting committees to deal liberally by them.

The attitude of the Lord Chancellor towards the superannuation question is evidently sympathetic, and he emphasised the necessity of favourably considering the claims of a deserving class of public servants, both in their own interest and in the interest of the unfortunate individuals confided to their care. He attached great importance to the principle of the superannuation clauses and expressed the hope that

amendments would be moved in Committee to give the best possible shape to the proposal. This is as it should be, and it now rests with the Parliamentary Committee of the Medico-Psychological Association to press forward their views on the subject, on the lines formulated in the report published in the *Journal of Mental Science*, October, 1897. We hope that success will attend their efforts. The provisions made for granting allowance in the case of injury or death in discharge of duty is undoubtedly in the right direction. Reviewing the Bill as a whole we cannot say that it will tend to lighten the labours or lessen the responsibility of those engaged in the care and treatment of the insane.

THE advances which have been made in recent years in the surgery of the brain and of the bowel are perhaps the most striking manifestations of the modern progress of surgery, but improvements of at least equal importance have taken place in the methods of surgical treatment of the kidney. In THE LANCET of April 30th we published the last of the Hunterian Lectures on the Surgery of the Kidney which Mr. HENRY MORRIS has recently delivered at the Royal College of Surgeons of England, and everyone who has read these lectures must acknowledge the great importance of the subject with which they deal. Renal surgery is altogether modern. Abscesses in connexion with the kidney had been occasionally incised but only when they had so closely approached the surface that they were pointing and the surgeon was doubtless greatly surprised to find that he had operated on a kidney. In the same way, too, renal calculi may have been removed after incision of a presenting pyonephrosis. These cases, however, are not really worthy of being considered cases of renal surgery at all. Further, it is true that in the sixteenth century the practicability of nephrotomy was discussed, but no application of these theoretical possibilities was ever made.

In 1869 GUSTAV SIMON of Heidelberg removed a kidney from a woman with complete success. This is the first real operation on the kidney. The possibility of life continuing in the absence of one kidney had been amply demonstrated by experiments on animals, but SIMON'S success was needed to convince surgeons that the same fact was true as regards human beings. The simpler operation of nephrotomy was, however, the renal operation which met with the greatest recognition and it was performed in no small number of cases for the relief of pyonephrosis and in a few of these a stone was removed. It was, however, not then recognised that there was an earlier stage than pyonephrosis in which surgical interference might be of advantage. In 1880 Mr. MORRIS cut into the apparently healthy kidney of a young woman and removed from it an oxalate of lime calculus. This was indeed a notable advance; it showed most conclusively that a thick layer of renal tissue could be cut through without any fear of uncontrollable or even severe hæmorrhage and that a wound of the kidney substance healed readily and thoroughly. But it showed much more than this: it showed that it was absolutely unnecessary to wait until a renal calculus had led to the complete destruction of a kidney before attempting to remove it and that it was not only possible but safe to remove a stone from a kidney otherwise quite healthy. The example thus set has been largely followed and the results have fully justified this alteration in practice. In Mr. MORRIS'S own cases of nephrolithotomy only one death occurred in thirty-four operations. The effect of this change of practice has been great, and as a consequence the operation of nephrolithotomy has largely replaced the simpler but less satisfactory nephrotomy in all cases in which the patient has applied for treatment sufficiently early. Another operation, which has done less perhaps than nephrolithotomy in the way of saving life but quite as much in removing pain and discomfort, is nephropexy, or "nephrorrhaphy" as it is frequently called. A moveable kidney has but little tendency to shorten life, yet it leads often to much suffering and may entirely incapacitate for any exertion, and in many cases the relief resulting from nephropexy is great and lasting. The latest development of renal surgery is of especial interest. When a kidney has been exposed by an incision it is occasionally found that the disease with which it is affected is limited to one part of the organ, and in a few cases it has been found possible to remove with success the affected parts only and thus to preserve a portion of an organ which otherwise would have had to have been altogether sacrificed.

If the recent advances in the surgery of the kidney have surprised those accustomed to the old order of things the modern surgery of the ureter excites still more astonishment. Numerous operations are now performed on the ureter, a structure which was quite recently considered to be wholly beyond the possibility of surgical interference. The first and probably the most important operation performed was ureterotomy for calculus, and though the operation is still rare yet it has been done by several surgeons and stones have been successfully removed from all parts of the ureter, from the pelvis of the kidney to the opening into the bladder. Strictures of the ureter have been relieved by ureterotomy and in some cases a portion of the tube has been excised with results which fully justify the operation. Ureteral anastomosis and ureteral grafting have received much attention in consequence of the frequency with which the ureter is involved in the operation of vaginal hysterectomy. Formerly the only hope which could be held out to a patient suffering from a ureteral fistula after such an operation was nephrectomy, but ureteral anastomosis and grafting bid fair to replace entirely this severe procedure. A still more extensive operation on the ureter is excision. It is only called for in cases of widespread and persistent disease, but it has been successfully performed for tuberculosis and other conditions of the ureter. Another subject considered by Mr. MORRIS in his lectures was "obstructive anuria." It is very rarely indeed that both ureters are simultaneously or almost simultaneously blocked by calculi. In most cases one kidney has been destroyed or rendered functionally useless by a stone and then later when the other kidney has taken on the double duty it too has had its ureter blocked by the impaction of a renal calculus. The symptoms which follow are identical with those met with after experimental ligature of both ureters

in animals and usually the symptoms which are commonly called "uræmic" are absent. The patient survives a few days, perhaps as many as ten, and then dies. The fatal ending is inevitable unless the obstruction is removed. It has taken many years for it to be generally recognised that obstruction of the intestines cannot be cured by the lavish administration of purgatives and that the obstructing cause must be removed or the bowel opened above the obstruction. In the precisely analogous case of obstructive anuria diuretics and exercise are still only too often relied on for treatment and a patient is allowed to succumb when an operation would have saved him. It is true that the percentage of spontaneous removal of the obstruction is greater in the case of the ureter than in the case of the intestine, but the principles involved are the same and an operation should be performed as soon as the diagnosis is established. The lectures were illustrated by an elaborate set of tables of operations on the kidney which must prove of great value in the preparation of statistics on this subject.[1] As one of the leaders in this important branch of surgery Mr. MORRIS could not have chosen a fitter subject for the Hunterian Lectures than the surgery of the kidney and he is to be congratulated on the ability which he brought to bear upon his task.

THE long-standing controversy between the advocates of cremation on the one hand and of inhumation on the other was once more revived by a lengthy and important letter published in the *Times* of April 11th. It was written by Sir FRANCIS SEYMOUR HADEN, who is well known to be an earnest advocate of earth-to-earth burial, and so uncompromising an antagonist of cremation that in his opinion, as expressed in THE LANCET of Aug. 19th, 1894 (page 381), "as a measure of public safety it ought to be at once declared a misdemeanour." Holding such views, and not sympathising with those who may prefer that their mortal remains should be submitted to the swift decomposition of combustion rather than to the fauna and saprophytes of the cemetery, he undertook to prove that "inasmuch as cremation renders the identification of the cause of death impossible, its practice cannot fail to operate as a direct incentive to crime, especially such forms of crime as are difficult of detection without prolonged and repeated methods of investigation," in the course of which argument the tenets of the Cremation Society and of Sir HENRY THOMPSON, its principal champion, were criticised with much frankness. In answer to inquiries Dr. THOMAS STEVENSON of Guy's Hospital said that "though he could not recall without great labour all the cases he had met with he had yet not only discovered poison by their exhumation but had been able to prove by it the innocence of suspected persons." The experience of Mr. THOMAS BOND of Westminster Hospital has been to the effect that "though, like Dr. STEVENSON, he could not furnish particulars of every case he had met with he had yet been concerned in the course of a single year (1891) in no less than four such cases, all of them proving by exhumation murder by arsenic; that in the very next year (1892) he had been called upon to make two such exhumations, which proved that a double murder had been committed, a man in one of them having been shot at a certain distance from behind, and a woman, also in the back, but at close range; that on another occasion—and that quite recently—he had exhumed a body after two months' burial and found that death had been caused by an illegal operation; and that he had had a similar case since." Mr. BOND also referred to the case of DE TOURVILLE and said that he "had no doubt many persons skilled in the use of poisons would more frequently resort to them if it were not for the knowledge that they were liable to be handicapped by exhumation." After a reference to several of the familiar cases recorded in the text-books Sir F. SEYMOUR HADEN concludes as follows: "There is no stronger argument against cremation than the imputation of foul play which it has in its power to cast on innocent persons. It is impossible to conceive anything more deplorable than the position of one who, having cremated, say, his wife, is afterwards laid under the imputation of having murdered her! By what right do the half-dozen enthusiasts which compose the Council of the Cremation Society—depriving him as they do of all possibility of proving his innocence—place a fellow citizen in such a light? No wrong can be greater, no martyrdom worse!" Sir HENRY THOMPSON, thus challenged, replied in the *Times* of April 13th that his book "Modern Cremation," published a few years ago, would fully resolve all the doubts and difficulties which have perplexed Sir F. SEYMOUR HADEN. The 102 exhumations in the course of twenty years were arrived at as the result of an inquiry organised by Dr. DANFORD THOMAS who sent a series of questions to the 334 coroners in England and Wales and received replies from 317 of them, embracing all the important districts. From the data thus received it was estimated that the mean number of exhumations made in a year throughout England and Wales is only five, and less than one yearly for poison. Sir HENRY THOMPSON points out the very serious defects in our present laws as regards death certification and contrasts it with the methods observed throughout France and Germany and suggests the appointment of a "médecin-vérificateur." The conditions which have to be fulfilled before cremation can be performed according to the rules of the Cremation Society of England are very stringent; an application in writing must be made stating that it was the wish of the deceased to be cremated after death or that he entertained no objection thereto; and *two* certificates from duly qualified medical men, one at least of whom must have attended the deceased, are required relative to the cause of death. These the society obtains direct, and it is therefore necessary in making application for cremation to give the names and addresses of such medical men in full. These methods of guarding against the too hasty cremation of persons who have died from violence or poison are so well devised that a committee of the House of Commons, after considering them, reported that "with the precautions adopted in connexion with cremation, as carried out by the Cremation Society, there is little probability that cases of crime would escape detection."

Everyone will admit that scientific discussions between

[1] Table I. and summaries of Tables II. to XI. will be found at p. 1310 of our present issue.

distinguished representative men ought to be conducted with at least the externals of a calm and judicial spirit, for which reason we were glad to find from the *Times* of April 14th that Sir F. SEYMOUR HADEN acknowledges that his letter printed on April 11th was characterised by "over-directness of more than one of its utterances."

Annotations.

"Ne quid nimis."

THE PARIS EXHIBITION OF 1900.

THANKS to our Paris Correspondent we were enabled to publish in THE LANCET of April 30th some interesting particulars of the plans which have been formed for the adequate illustration of all the departments which concern medicine and the allied sciences. It will have been noticed that the scheme is a most complete one and it only requires the cordial coöperation of the countries concerned to ensure the presentment of an object lesson in all that pertains to the art of healing which will show the world at large how far and how wide has been the progress during the century which that exhibition will commemorate. We note with pleasure that it is proposed to group the exhibits according to their natural affinities rather than under the head of each country, but we recognise that it will be necessary for very careful discrimination to be shown lest a prominence be given to any one nation in departments of science to which its actual share does not entitle it. In respect to Great Britain and her dependencies we would point out that prompt steps should be taken to initiate an organisation which should have for its object the ordering of the arrangements for our adequate representation in this "World's Fair." Too often these exhibitions testify more to the isolated enterprise of commercial firms than to general improvements in the arts and sciences. What is required is not an exhibition of wares, but of genuine inventions and scientific instruments of the best and latest type. It might be well for one section to be devoted to a historical series which would give the visitor a *coup d'œil* across the century and show him when such and such an invention was launched on the world, and what modifications it has undergone in the years which have followed. Thus there would be presented a picture of evolution in human ingenuity and a great tribute to the master-minds that first conceived ideas which have borne so much fruit. But it is not in mechanical inventions alone that such a mode of exhibition of the results of scientific labour could be made manifest. The same method could be well applied in every department which has to do with the prevention of disease, the care of the sick, and the preservation of health. We need not again enumerate them, they are concisely classified in the article which we published in our issue of April 30th. Nor are the triumphs of medicine in the nineteenth century confined to any one nationality. France may claim the invention of the stethoscope, Germany that of the ophthalmoscope, and England the introduction of antiseptic surgery. In each land names of almost as high eminence as those of Laennec, Helmholtz, and Lister may be cited whose work has contributed to the amelioration of the ills against which the profession of medicine strives. If England has her Jenner, France has her Pasteur, and Germany has her Koch; and one of the most remarkable features of this exhibition should be to show how bacteriology took its rise and where it has assisted in the elucidation of the nature of diseases and enhanced our means for their prevention and treatment. In order, then, that our country may be fairly and fully represented in this great display we would urge the Commission over which H.R.H. the Prince of Wales presides to take steps to secure a thoroughly representative committee or committees to fill in the details of the scheme which the authorities in Paris have outlined. To this end there might in the first place be formed a large body of delegates from State institutions, hospitals, societies, colleges, and schools, out of which might be constituted the representative committees of each of the great medical sections which will be illustrated. We are most anxious that there should be some definite and responsible organisation of experts who would control and arrange the objects to be exhibited from this country. This is a matter which ought not to be suffered to depend solely upon the chance of individual enterprise, but to be effective it should be organised and to be organised it should, we think, have State recognition and receive the aid of the Treasury in carrying out its objects. What applies to medicine may apply also to other departments and our main purpose in raising the question thus early is to stimulate public opinion on the subject and to interest our Government in it. The meeting of the International Medical Congress and of the other local congresses in Paris during the Exhibition may facilitate the creation of—at least as regards our calling—an organisation such as we have hinted at. We only throw out the suggestion; it is for others in authority to acknowledge its utility and to take steps to carry it out.

THE COUNTESS OF DUFFERIN'S FUND.

A PERUSAL of the thirteenth annual report of this fund, that for the year 1897, produces a very favourable impression of the energy, capacity, and tact with which the National Association for Supplying Medical Aid to the Women of India has carried on its work. This, it will be remembered, is an undertaking by women on behalf of women. The report abounds in every descriptive detail relating to the subject of which it treats and like most statements of its kind it is fortified by a mass of appendices, which provide the reader with information on all that concerns the conduct of medical education and treatment as carried out in the schools and hospitals under the control of the association as well as in hospitals in the Native States. It is practically, therefore, a book of reference. A mere glance at its pages, however, will suffice to show that the aid in sickness provided by the association has been much and widely appreciated. Difficulties, indeed, have had to be faced, but they have not been met in vain. In spite of caste prejudice the education of native girls in medicine has progressed, though as yet slowly. The student-roll for the past year includes 89 Europeans and natives in training for a subordinate grade of "assistant surgeon," 103 for that of hospital assistant, and 95 for those of nurse and compounder. Every effort is being made to stimulate the zeal of provincial governments and native gentry in support of the work of education done by the association and these endeavours have not been unsuccessful. Turning to the more directly practical side of the subject we find that there are 180 hospital wards and dispensaries in operation throughout India, most of them governed by, or affiliated to, the association. The fully qualified lady practitioners number 33, and there are 70 "assistant surgeons" and 117 hospital assistants or practitioners of the third grade. A point of significant importance is the fact that women of the purdah class—i.e., inmates of zenanas—are availing themselves with increasing readiness of the aid afforded to them under the new system of medical treatment. The funds available for the needs of the association have so far been generally adequate to its requirements. In some districts, however, notably in the Bombay and Madras provinces, a

marked falling off attributable to the prevalence of famine in these districts has been observed. A gratifying feature in this connexion is the liberality exhibited by several native gentlemen.

A MEDICAL SPEECH ON ALCOHOL.

MR PEARCE GOULD has been making a speech to the National Temperance League on alcohol and the advantages of doing without it both in health and in the treatment of disease. It takes a strong man to say the strong things which Mr. Gould said on the subject, especially if he happens to be a medical man. No doubt, as Mr. Gould says, the use of alcohol in medical practice is nothing now compared to what it was twenty years ago, much more forty years ago, when Dr. Todd's influence and the reaction from the so-called antiphlogistic treatment were at their height. Public opinion has been enlightened by the evidence of leaders in medicine such as Dr. Parkes, Sir William Gull, Dr. Gairdner, Dr. Sanderson, and others, and medical men have dared to treat disease without alcohol or with only small quantities of it. There are physicians and surgeons of reputation and success who are so strong in their convictions that alcohol is of little use in the treatment of disease, that it destroys tissues, lessens the resistance to microbes, deranges functions, spoils temper, and shortens life, that they are ready to testify to this effect in public in company with redoubtable champions of the temperance cause like the Archbishop of Canterbury, Sir William White (Chief Constructor of the Navy), and the Bishop of Derry, who have as much prejudice to contend against in their spheres as the medical man has in his. We recognise with pleasure the good done by such testimony as Mr. Gould's. Men whose record and authority in the profession are such as his have the courage of their opinions and their honest testimony will be respected even by those who do not go quite so far in discarding alcohol as an element of diet or as a medicine. On one point the profession is unanimous—that moderation in the use of alcohol must be observed unless certain mischief is to follow; the quantities which our forefathers regarded as moderate would now be thought capable of doing much harm.

RECENT RESEARCHES IN METEOROLOGY.

AT a meeting of the Meteorological Society on April 20th Major Herbert E Rawson, R E., read a paper on Anticyclonic Systems and their Movements, commencing with the statement that cyclones and anticyclones have long been recognised as powerful weather controls, but up to the present time very little has been written in this country upon the progressive movements of the cores of the permanent high-pressure areas which are found to be associated with certain localities at different times of the year. He has come to the conclusion that if the various anticyclonic systems are considered separately and their movements investigated continuously throughout the year their cores will be found to have a distinctly marked progressive motion and that the movement of a high-pressure system is to be gathered from that of its core, as plotted on a chart from month to month. The high-pressure areas of the globe may be divided into those of the northern and those of the southern hemisphere. In the latter a well-defined system is always found in the Pacific off the west coast of Chili; another is off the west coast of Cape Colony, and another is in the Indian Ocean to the west of Australia. In the northern hemisphere there is a system in the Pacific to the west of California which persists throughout the year; there is another over the Atlantic for about ten months of the year, and there are two over the United States and over Central Asia for about six months of the year. The movements of the anticyclonic systems in the northern hemisphere are more difficult to follow than those in the southern, but there is always a progressive movement in some direction or other and the law that high-pressure areas move off the land as temperature increases and return to it or form over it as temperature falls can be recognised. There is a definite progressive anticyclonic movement westwards from Siberia and Russia towards Great Britain in the early months of the year, and eastwards back again to Siberia in the later months. Major Rawson analysed at great length the results of plottings from various weather charts, especially Buchan's isobaric charts and those of the united Danish and German meteorological offices. One of his tables showed that from 1881 to 1891 the core of an anticyclonic system was over the British Isles on 212 occasions, 130 of which were due to the Atlantic system, 41 to the Scandinavian, 17 to the Greenland, 22 to the Atlantic and Scandinavian merged, and 2 to the Atlantic and Greenland merged. The indications are in favour of the idea that the atmospheric conditions over these islands foster the formation of an anticyclonic core, and the centre of the Atlantic system is displaced accordingly in that direction, but that the cores do not continue long in the neighbourhood, owing in the first instance to the ever-varying seasonal changes of temperature and next to those brought about by the general atmospheric circulation. These two influences appear to Major Rawson to be of supreme importance in determining the direction in which any anticyclonic system will move, and he considers that if further investigation should confirm his views the result would be a valuable addition to the present method of forecasting by means of synoptic charts.

THE SANITARY POWERS OF THE BRADFORD CORPORATION.

A VERY important case, both from the point of view of the property owner and of the public health authority, was heard on April 28th before the stipendiary magistrate at the Bradford city police-court. Proceedings were taken to recover penalties from an owner, Mr. Holdsworth, in Shuttleworth-lane for neglect to comply with a notice requiring him to convert certain privy accommodation into water-closets. Mr. F. Stevens, who appeared for the corporation, stated that the summons had been issued under Section 21 of the Bradford Improvement Act of 1873, the wording of which is as follows:—

"In addition to all powers vested in the corporation the corporation may in any case where a dwelling-house within the borough shall be without a privy, water-closet, or earth-closet, or an ashpit, or without a privy, water-closet, or earth-closet, or an ashpit of a construction and size approved by the corporation, require the owner of such house by notice under the hand of the mayor or town clerk for the time being, to provide such a privy, water-closet, or earth-closet, or such an ashpit, or to make such reparation or alteration of the existing privy, water-closet, or earth-closet, or ash-pit, as in such notice shall be stated and within a period to be therein mentioned. If such owner shall neglect to comply with such notice within the time therein appointed he shall for every such offence forfeit a sum not exceeding five pounds, and a further penalty not exceeding the like sum for every day during which such offence shall continue."

Briefly stated the facts of the case were these. On Nov. 23rd, 1897, Mr. Holdsworth's property was inspected by a sub-inspector of nuisances who reported that the privies and ashpits in six houses belonging to the defendant were in a foul and dilapidated condition. On Dec. 1st the matter was reported to the sanitary committee of the city council and they passed a resolution that the houses should be provided with water-closets and ashpits of the construction and style approved by the corporation. Due notice was served on Dec. 7th but nothing was done up to Feb. 15th, 1898. Notice was given of the intention to commence prosecution but still

the privies were there and on March 28th the summons was taken out. It was allowed by the prosecution that the privies had been repaired, but they contended that they were still privies and not water-closets. The property was originally built in 1873 under the supervision of a corporation official, but for the last five or six years the corporation had ceased to sanction the erection of new privies. The stipendiary magistrate reserved his decision for a week and judgment was finally given on May 9th. He found that the contention of the corporation was good in law and he fined the defendant 20*s.* and 8*s.* costs and said he would state a case for the consideration of the High Court. As far as we can see by the wording of the Act under which proceedings were taken the corporation does not seem to have the power to order the conversion of a privy into a water-closet. The Act only says that the corporation may require the owner to make such reparation or alteration of the existing privy as shall be stated when notice is given. It can hardly be said that the conversion of a privy into a water-closet is an alteration of an existing privy. The question which of the two systems is the better from a sanitary point of view does not seem to us to be the point at issue and it was allowed by the prosecution that the defendant had improved his privies; so that had they been in as good a condition when the case arose as they are now he would probably not have been troubled in the matter.

DEATH FROM "DIPPING."

AN inquiry was held at Aston on May 5th relative to the death of a man described as an annealer and dipper. His duty appears to have been that of dipping copper cups in dilute nitric acid after they had been annealed and pickled. The medical evidence pointed to acute congestion of the lungs, a condition consistent with the statement that the deceased had inhaled acid fumes. The jury returned a verdict in accordance with this and added that they did not attach any blame to anyone, but recommended the company to supply chemically charged respirators for the men employed in work similar to that which the deceased did and to have printed notices exhibited to that effect. The product of the action of dilute nitric acid on copper is, of course, nitric oxide, which, however, in contact with air forms nitric peroxide. This dark red fume meeting the moisture of the respiratory passages would split up into nitrous and nitric acids, which are distinctly injurious to the lung tissue. While agreeing with the verdict we think that some suggestion might have been made as to the possibility of substituting a mechanical dipping arrangement, so that the operator might avoid inhaling the fumes. The dipping process appears to be so simple as to imply the adoption of an equally simple mechanical contrivance.

THE PARALYSES OF WHOOPING-COUGH.

AT a time when whooping-cough is so prevalent a peculiar and practical interest attaches to a careful study by Dr. Charles Leroux of the paralyses associated with this disease. The results of his investigations have been published in several recent numbers of the *Journal de Clinique et de Thérapeutique Infantiles*—March 31st to April 28th, 1898. The total number of cases collected by him is 38. Of these 25 were those of children under five years of age. The paralytic seizure occurred in most cases during the ascendency of the disease but in some during its decline. It was associated with severe types and sometimes with various complications, such as scarlet fever, broncho-pneumonia, &c. Dr. Leroux classifies the resulting lesions under four chief headings. 1. Cerebral paralysis. This is commonly hemiplegia, though 2 cases of monoplegia, both of the right arm, are also recorded, as well as cases of aphasia and cases of disturbance of special senses. 2. Of spinal paralysis 2 cases with paraplegia of the legs are quoted. 3. There are also 4 cases which appear to depend upon peripheral disorders, different groups of muscles being involved in each case. 4. An example of disseminated sclerosis, though possibly existent before the cough began, appeared to be distinctly aggravated by its development. Dr. Leroux draws attention to the question of prognosis. He finds the mortality to be 6 cases out of the 38 and he directs attention to the fact that very young children are particularly liable not only to die but, where this result is prevented, to retain a degree of permanent paralysis. As the age of the child increases the prospect of complete recovery from a seizure improves. The pathology of these various conditions, though more or less obscure in many cases, is decipherable with tolerable clearness by the light obtained from a limited number of necropsies. It comprises congestions, hæmorrhages—submeningeal, meningeal and cerebral—and patches of inflammatory softening. In discussing this part of his subject Dr. Leroux notes the fact that the cough paroxysm alone does not account for the nerve paralyses, as these have occurred repeatedly during the decline of the disease. He is disposed rather to regard whooping-cough as exercising a damaging influence on the coats of blood-vessels in the nervous tissues, very much in the same way as other infections have been shown to do. Whether this theory be entirely justified or not it is at least instructive to be reminded of a complication which, though rare, has long been recognised among the less regular characteristics of whooping-cough. Its bearing on treatment is obvious. In this connexion much is apt to be left to nature, but the cases above mentioned ought to impress the fact that there is a very real purpose in the maintenance of effectual sedative measures. The common practice of exposing children out-of-doors in all weathers is much to be reprobated as tending to induce those pulmonary troubles which are liable to induce convulsions and thus easily lead to other and dangerous forms of brain disturbance.

THE USE OF GLYCERINATED VACCINE LYMPH IN CHICAGO.

THE Department of Health of the city of Chicago was the first sponsor in the United States for the use of glycerinated vaccine lymph in public vaccination and is concerned to note, we learn from the March report of Dr. Arthur Reynolds, the Commissioner of Health, that not all producers and vendors of such lymph seem to be familiar with the requirements necessary to secure, first, a pure and sterile lymph—i.e., a lymph free from pathogenic bacteria; and second, a potent lymph—i.e., a lymph which shall give not less than 90 per cent. of successful typical results in primary vaccinations. The Department has learned of these defects through the frequent solicitations of producers to have their respective products substituted for that already in use and the consequent examinations thus made necessary. "In the latest instance," says Dr. Reynolds, "the lymph, put up in a 'Sternberg bulb' with much painstaking, gave an abundant growth of white pus cocci on streak agar, demonstrating that it had not been exposed to the inhibitive action of the glycerine sufficiently long. Yet the package was stamped, '*Do not use after June 1st, 1898.*' ... On the other hand, a product submitted in February last was found sterile, not only as to bacteria, but almost so as to vaccinal value. Out of twenty tubes used only nine typical vaccinations were secured. There was no indication on the package as to the age of this lymph, but the experience of the Department warrants the belief that it was more than 120 days from the calf." Glycerinated vaccine is said by Dr. Reynolds to lose its potency after about 120 days,

so that the evil done in this latter case to public vaccination, if less serious than in the case of an infected vaccine, is still of serious moment. Vaccinators in America, as with us, find it exceedingly difficult to secure the consent of the parents to another attempt at vaccination after a failure and every effort should therefore be made to reduce the percentage of failures to the minimum by using only a potent as well as a pure vaccine. The use of pure reliable vaccine has made vaccination popular in Chicago to a most gratifying extent, we learn from Dr. Reynolds's report, and the present is a very good opportunity for us to lay stress on the fact. Our readers will find in Dr. Copeman's Milroy Lectures[1] full information upon vaccination by glycerinated calf lymph, but if the lymph is bad successful results cannot follow and cause for renewed agitation will be given.

THE MANSION HOUSE AND THE LONDON HOSPITAL.

THE Lord Mayor is going to make another departure from routine in giving a dinner on May 18th at the Mansion House with a view of advocating the claims of "London's largest hospital" situated in its poorest part. His Lordship deserves every support and encouragement in this use of his influence and hospitality. No man of any means who reflects for five minutes on the work of the London Hospital, by day and night, will lightly dismiss its claims to consideration or deny himself the pleasure of helping to avert such a catastrophe as the closure of wards from financial stress would be. These claims are not too often pressed unduly on the public, but once in five years or so special appeals have to be made. Such is the nature of the present occasion, and the chairman and committee of the hospital are to be congratulated on having a Lord Mayor in such practical sympathy with them. No use of comfortable or superfluous wealth would be more beneficent than such a response to the Lord Mayor's kind appeal as will secure the committee of the hospital against anxiety for the next five years. We venture to hope that many who cannot avail themselves of his lordship's hospitality will associate themselves with his kindness as regards this great object.

AUSTRALIAN MEDICINAL PLANTS.

A CORRESPONDENT in Australia writes:—"Australia is rich in plants reputed to possess medicinal virtues, although at present only a few have been utilised, and these but to a limited extent. In New South Wales such plants are abundant, many kinds being found in the immediate vicinity of Sydney, especially in the Parramatta district. Two little plants of the gentian family, plentiful enough in the spring, have proved highly efficacious in certain stages of dysentery. The common native raspberry, like other species of *Rubus*, possesses astringent properties which may one day secure it a place in the colonial pharmacopœia, which already includes the native sarsaparilla, although, notwithstanding the latter abounds in the neighbourhood of Sydney, the bulk of the sarsaparilla used by colonial chemists is imported. The country people frequently prepare an agreeable and wholesome tonic from the native plant, which costs nothing save the labour of collecting it. It is also known by the name of sweet tea or wild liquorice. There is also a native laurel allied to the sassafras of the pharmacopœia, which possesses medicinal properties as yet but little understood. The castor-oil plant not only yields the well-known oil, but the leaves have been successfully employed as a galactogogue. The thorn apple is used in asthma, the seeds when expressed and made into an ointment with lard being said to be useful for irritable ulcers, burns, and scalds. The medicinal virtues of the various kinds of eucalypti, or gum trees, have become universally recognised, but it is not so generally known that they are shared also by the different species of tea tree and wattle. The flowers of the native pittosphorum yield a jasmine-like scent by distillation; and the boronia and other rutaceous plants abound in volatile oils. The foregoing are only a few of the many Australian native plants known to possess medicinal properties, and their luxuriant abundance during the greater portion of the year, combined with the ease with which many species can be cultivated in suitable localities, will at some future date give them considerable industrial value."

[1] Lecture I. was published in THE LANCET of May 7th and Lecture II. will be found at p. 1303 of our present issue.

THE "JOURNAL OF TROPICAL MEDICINE."

IT is proposed, if enough support can be obtained for the scheme, to publish in London a monthly journal dealing with the diseases of warm climates, to be devoted to the publication of papers on tropical diseases and to the discussion of subjects scientific and practical affecting the interests of medical men in tropical and subtropical climates. The annual subscription, including postage, is to be 17*s*. We wish the promoters success in their new venture. They deserve it, for there is no country which has such a large interest in the tropics and the diseases common to them as our own. Any communication addressed to the Editors, *Journal of Tropical Medicine*, Messrs. John Bale, Sons and Danielsson, 85 to 89, Great Titchfield-street, London, W., will receive attention. The editors are Mr. James Cantlie and Dr. W. J. Simpson.

"INQUIRY" AT THE LEEDS GENERAL INFIRMARY.

WE are informed that an inquiry into the circumstances and means of applicants for treatment at the Leeds General Infirmary is in operation. Such inquiries are apt to be superficial and of very little use. But our information leads us to hope that the inquiry at Leeds will be of a more satisfactory character. This is desirable in the interest of the poor as well as in that of the subscribers. Nothing will resuscitate the interest in hospital work and charity and increase the support of them so much as honest and thorough investigations of the sort which we have every reason to believe are taking place at Leeds. We shall look forward to a valuable contribution to the elucidation of this subject by the managers of an infirmary which has long held a leading place among such institutions.

THE REMUNERATION (?) OF POOR-LAW MEDICAL SERVICE.

THE *Daily Telegraph* of April 29th had a paragraph stating that the medical officer of health of Luton has lately been showing that out of a salary of £80 a year he has to supply 10,000 bottles of medicine yearly and that this works out at the rate of a fraction under 2*d*. per bottle, professional service included. The statement is almost incredible—quinine, iodide of potassium, cod-liver oil, *plus* brains, medical education past and continuous, and professional status, all for 2*d*. Much is said about cheap dispensaries, out-patient departments, medical aid association rates, and so on; but in the light of such calculations as those we are noticing we must regard Poor-law guardians—at least the guardians at Luton—as the worst sweaters of the profession. How can guardians expect the poor to be well treated or soon restored to health at such rates of payment? The only answer which can be made is that the guardians rely on the humanity of their medical officer instead of on the justice of their own arrangements. This has been too long the way of bodies having to determine the remuneration of medical men, especially of guardians. It is time that this should cease. The humanity of medical men is a large store on which to draw, but it has been terribly abused and in

their own interests and that of the public such abuse should no longer be allowed. The profession is not free from blame for such beggarly treatment, and a little of the independence and self-assertion which have been shown in respect of the grievances of the Army Medical Department will have the same beneficial effect in the Poor-law medical service.

THE ROYAL COMMISSION ON THE DISPOSAL AND TREATMENT OF SEWAGE.

THE constitution of the Sewage Commission was announced by Mr. Chaplin in the House of Commons on May 5th. Public health is represented by Sir Richard Thorne Thorne, K.C.B., and Dr. James Burn Russell; biology by Professor Michael Foster, and chemistry by Professor Ramsey. The names of the rest of the Commission will not be so well known; they include two officers on the retired list of the army—namely, Major-General Constantine Phipps Carey and Colonel Thomas Walter Harding—and Mr. Charles Philip Cotton and Mr. Thomas William Killick. Though it must be regarded as a strong and representative board there is not included amongst its members, oddly enough, either a bacteriological expert or an expert on sewage engineering. The Earl of Iddesleigh is to be the chairman and Mr. F. J. Willis the secretary of the Commission. The scope of the inquiry is indicated in our Parliamentary Notes on another page.

THE TRUCK ACT, 1896.

A CORRESPONDENT draws our attention to the Truck Act of 1896 and suggests certain questions respecting its bearing upon sick funds where the collections for these purposes are made by employers or by their representatives. He asks whether it will affect the position of the surgeon, whether the doctor's fund comes under that Act, whether the employer must in future abstain from making the collection of the contributions of the workpeople, and whether the fund itself must be placed in the hands of the men. These are matters of great importance and if any doubt can arise about them it is certainly most desirable that it should be set at rest forthwith by the publication of an authoritative utterance. We have perused the Statute and we confess that it appears to us pretty clear that no one of these questions can arise. The Act relates, and relates only, to deductions from the workman's wages by way of fines and penalties or of payment for the supply of materials and tools. The position of medical funds and the conditions under which they can be collected by deductions from wages were regulated by a section (23) of the old Truck Act passed in the time of William IV. and they have remained upon that footing ever since. We are unable to discover in the new Act anything which disturbs that established position and we imagine that the questions formulated by our correspondent can be answered by a comprehensive "No."

THE DANGER OF ASPIRATING THE LIVER.

ASPIRATION of the liver is performed as an exploratory operation for suspected abscess; it has also been recommended as a means of blood-letting in certain diseases of that organ. The danger of this practice, which is far from generally known, is shown in an important paper published by Surgeon-Lieutenant-Colonel Hatch in the *Indian Medical Gazette*, April, 1898. Free and even fatal hæmorrhage from the enlarged and congested liver has resulted, and this effect seems more often to have been produced when no abscess was present than when one existed. The writer of the paper has had two fatal cases in his own practice and he quotes three others. He has no doubt that most Indian surgeons have had cases but unfortunately they have not published them as a warning. About three years ago two patients suspected of having abscess of the liver were aspirated by Surgeon-Major Quicke on consecutive days. In both the symptoms of internal hæmorrhage and death followed. A necropsy was made in one case; it showed blanching of the body and a large quantity of blood in the peritoneum and no abscess of the liver. But hepatic hæmorrhage was not the only cause of death. In a sixth case an intercostal artery was nicked and gradual hæmorrhage into an abscess cavity took place and proved fatal. Surgeon-Lieutenant-Colonel Hatch concludes that aspiration of the liver should never be performed as a mere means of diagnosis, but the facts might have carried him further, to recommend its total disuse. The operation offers no advantages to compensate for its undoubted risks.

INSPECTION OF VACCINATIONS.

UNDER the present system of arm-to-arm vaccination it is essential that the vaccinator shall see the child on the eighth day in order to maintain his supply of lymph. When the use of calf lymph comes to be the rule this will not be necessary and the date of inspection might be left more to the discretion of the vaccinator. In many cases more than one inspection might be made and wherever necessary more than one inspection ought to be made. Parents ought to be informed that if they so desire the vaccinator will revisit after his first inspection. This could easily be arranged by the vaccinator at the time of his inspection handing to the parent a form of request, perhaps printed on a postcard, for sending to the vaccinator asking for a later visit. The details would be for arrangement by local authorities and their officers and legislation is probably not required, but it would be well to know that power to make such arrangement exists, or may be provided for, under order by the Local Government Board or otherwise.

DIPHTHERITIC PNEUMONIA.

THE diphtheria bacillus does not always remain confined to the diseased mucous membrane but sometimes invades the blood and internal organs—the lungs, spleen, and lymphatic glands. Of these organs the lungs are most frequently affected; according to recent investigators, Kanthack and Stephens, in 26 fatal cases the bacilli were found with ease in all and in large numbers. In 15 of these cases broncho-pneumonia was present. What is the relation of the broncho-pneumonia to the bacilli? In almost all cases of broncho-pneumonia occurring in diphtheria other organisms such as streptococci and staphylococci are found in the lesions. It has therefore been supposed that the broncho-pneumonia is due to these organisms and not to the bacilli. Dr. S. Flexner and Dr. H. B. Anderson have published experiments in the *Johns Hopkins Hospital Bulletin*, April, 1898, however, which strongly support the view that the broncho-pneumonia is a truly diphtheritic lesion. They injected pure cultures of diphtheria bacilli into the tracheas of rabbits, which caused a definite and often widespread pneumonic process; but in certain cases, notwithstanding the entrance into the lungs of numerous bacilli, pneumonia failed to be produced. The pneumonia was lobular or pseudo-lobar in character and for the most part cellular, fibrin playing a relatively small part.

THE VENTILATION OF THE UNDERGROUND RAILWAY.

WE are quite in sympathy with those people who are protesting against the construction of more blowholes upon the Underground Railway. There can be little doubt that blowholes are a source of great inconvenience and discomfort to over-ground passengers and pedestrians, as well as to many residents, and it is an open question

whether they serve as a real remedy for the choky state of the tunnels. Yet a Select Committee of the House of Commons has decided to allow an increase of blowholes and a Bill has passed the House of Commons but not the House of Lords. The nuisance must exist as long as coal is used as a source of locomotive power. Mechanical ventilation has been suggested and this probably would be more effectual and satisfactory than blowholes which after all are merely openings in the tunnels, while the sulphurous smoke could be diverted by such means or even deprived of its impurities by forced passage over wet screens. Electrical traction is the ideal way out of the difficulty, but until that becomes universal we do not see the remotest prospect of its being applied to the Underground Railway, since there are other companies having running powers over its lines and though their trains are for a time passing through the underground tunnels they are more often travelling in the open air, so that smokeless engines are not an absolute necessity throughout the greater part of the journey.

A SIGN OF THROMBOSIS OF THE SUPERIOR LONGITUDINAL SINUS.

IN a recent number of the *Revue des Sciences Médicales* is an abstract of a case published by M. Lermoyez, who calls attention to a sign of great value in the diagnosis of thrombosis of the superior longitudinal sinus. A woman, aged thirty years, entered hospital for symptoms of septicæmia consecutive to old otorrhœa. There were severe pains in the temporo-occipital region. A hard cord was formed by the thrombosed jugular vein so that thrombophlebitis of the lateral sinus probably existed. Intervention was decided on; but the situation became aggravated and a new phenomenon appeared—dilatation of all the veins of the scalp without participation of the facial veins, which enabled M. Lermoyez to diagnose thrombosis of the superior longitudinal sinus. An operation was performed and an extradural abscess was evacuated, but the sinus thrombosis was too extensive for the removal of the clot entirely. The patient died comatose the following night. The necropsy confirmed the diagnosis.

THE VACCINATION BILL.

THE Vaccination Acts Amendment Bill was read a second time in the House of Commons on Monday last. The measure having a somewhat low position amongst the orders of the day the debate came on unexpectedly; it lasted over four hours and the division, taken at midnight, resulted in a majority in favour of the second reading of 214, only 23 votes being given against the motion in a House of 260 Members. The majority of the speeches were those of opponents to the Bill, such as Mr. Hazell, one of the members for Leicester, Mr. Channing, Mr. Labouchere (who spoke against it, but apparently voted for the second reading), Mr. Ashcroft (who brought a mandate from his constituency, Oldham, to oppose the measure), Mr. Whittaker of the Spen Valley Division of Yorks, Mr. Allan, and Dr. Clark. They chiefly argued against compulsory vaccination, but some more venturesome took the pronounced anti-vaccination position and maintained that small-pox could be as effectually dealt with apart from recourse to what they characterise as a method of more than doubtful efficacy. Dr. Clark, whilst expressing his personal belief in the modifying influence of vaccination over small-pox, seemed to arrive at a similar conclusion as to the method of dealing with the disease. The speeches in support of the measure by Sir C. Dalrymple—a member of the late Royal Commission—Mr. T. P. O'Connor, Dr. Farquharson, and Mr. T. W. Russell, the Parliamentary Secretary to the Local Government Board, were certainly better furnished with argument and doubtless influenced the division. In particular Mr. O'Connor's virile and pithy contribution to the debate put the case for vaccination in a nutshell. Mr. Chaplin's motion to refer the Bill to the Standing Committee on Law was strenuously opposed mainly on the ground that its controversial character required its discussion in committee of the whole House. Mr. Chaplin, however, carried his motion by a majority of 151—201 voting for and 50 against it.

PULEX IRRITANS

A CORRESPONDENT has written to us to know the best way of exterminating the flea pest. As the season is approaching when pulex irritans makes its presence most felt the following summary of some remarks and correspondence which appeared in THE LANCET in 1895[1] may be useful. Thorough and systematic cleaning is, of course, a first principle in the plan of prevention. The use of common English lavender kept with clothes or in beds has been tried with good results. Paraffin is said to act similarly but its smell is disagreeable. If before retiring for the night the body be sponged with weak vinegar and water pulex irritans will often cease from troubling. The irritation caused by the bite may generally be allayed by the application of sal volatile or salt and water. Strong infusion of quassia freely used as a wash is said to cause swarms of fleas to vanish "as by magic." A little chloroform poured on the clothes over the point of attack soaks through and permanently quiets pulex irritans and allays the irritation of its bite. It is curious to remark the preference which the pest appears to evince for certain persons and, again, while some persons are extremely sensitive to its bites, enormous wheals being raised, others are merely annoyed by its peregrinations over the body.

THE PERILS OF A SANITARY INSPECTOR.

AN Englishman's house is no longer his castle in these democratic days. That comfortable doctrine is almost as dead as the belief in the Divine right of kings, and a case which recently came up at the Liverpool police-court is a good example. Hugh McCarthy, a dock labourer, was charged with assaulting Ethel Frances Burton, a sanitary inspector under the corporation. Miss Burton arrived in uniform to inspect the defendant's house and was promptly tackled by Mrs. McCarthy, who took her into an adjoining room where Mr. McCarthy was lying on a sofa. He and his wife then detained Miss Burton for the space of an hour, in the meantime examining her books to see what names were entered therein. Ultimately she was liberated at the request of one of the children. The defendant pleaded that he "had just had some words with his wife," but he was fined 20*s.* and costs. Everyone will remember that inimitable scene in "Bleak House" where Mrs. Pardiggle and the children who were members of the "Infants' Bond of Joy" visited the recalcitrant bricklayer, and had Miss Burton been a person of the Pardiggle type we should have sympathised with Mr. McCarthy, but official sanitary inspectors stand upon a very different footing. They fill a most useful part in our modern economy and at all risks must be protected against interference with their duty.

MILK PRODUCTION UNDER SCIENTIFIC CONTROL.

NOTHING could be more satisfactory than the increased attention and care now being bestowed by large dairy companies to secure the production of healthy milk. Bacteriology has from its infancy indicated the necessity of scientific control in this industry, and it is satisfactory and reassuring to know that its teachings are not ignored. Again, most large producers find it necessary in view of the advance of public education to be prepared to provide milk of definite

[1] THE LANCET, April 6th (p. 882) and 20th (p. 1018) and May 4th p. 1163), 1895.

composition for infants and invalids. Thus, to take one example, we have before us a synopsis of the appointments, equipments, and products of the dairy managed by Messrs. Welford and Sons. The staff includes medical officers, sanitary inspectors, veterinary surgeons, and an analyst. The preparations include facsimile human milk, peptonised milk, sterilised milk, sweet whey, sterilised cream, sterilised separated milk, butter milk, koumiss, asses' milk, and milk for the nursery. In addition to the steps which are taken to ensure the supply of nothing but healthy milk samples are also taken every day and analysed in the laboratory, all milk falling short of a standard quality being rejected. The procedure thus adopted by this important branch of industry might well be followed in other branches, and it is a tribute to the constant representations of bacteriological investigators that commercial enterprise has acted upon scientific teaching and has admitted the necessity of scientific control. By such a forward step the community at large gains not a little.

MEDICAL GUESTS AT THE SAVAGE CLUB.

THE members of the Savage Club have lost no time in following the admirable example set by the Lord Mayor of London in entertaining the medical profession, or at all events certain representative members of it, at dinner. Recently, we understand (and for this information we are indebted to our contemporary, the *Medical Press and Circular*), the Lord Chancellor and other distinguished members of the legal profession were present at one of the customary Saturday evening dinners of the Savage Club. This seems to have suggested to some of the members of that interesting body the happy thought of extending similar hospitality to the sister profession of medicine, and the occasion of the occupancy of the chair on Saturday last by Mr. J. Y. W. MacAlister, who, as the esteemed Librarian of the Royal Medical and Chirurgical Society, is closely associated with our profession, was evidently thought to be—as indeed it was—very appropriate to the purpose. Among the chairman's guests were Sir Samuel Wilks, President of the Royal College of Physicians of London, Sir William Mac Cormac, President of the Royal College of Surgeons of England, Sir Dyce Duckworth, Mr. Bryant, Dr. Ferrier, Dr. Church, Mr. Warrington Haward, Dr. C. J. Hare, and Mr. Thomas Wakley, Jun. Among other medical guests present were Dr. George Ogilvie, Dr. Danford Thomas, and Dr. Aldren Turner. The Savage Club has quite a fair sprinkling of medical members, amongst those present on this occasion being Dr. Abraham, Dr. Symons Eccles, Dr. Sims Woodhead, Mr. Percy Dunn, Dr. Strahan, and Dr. Gubb. That the room was full is certain; that the songs, recitations and other forms of entertainment—not forgetting a "really wonderful" (the clever performer's own description is certainly applicable) card trick—were of the very best quality is also certain; the pleasure of the medical visitors, moreover, was probably not lessened by the fact that after-dinner speeches seem to be "taboo" at the Savage Club. The only touch of local—i.e., medical—colour was an interesting Roentgen Ray demonstration by Dr. F. Low. Last week we thanked the Lord Mayor; this week we tender our thanks to the members of the Savage Club, not only for hospitality, but for the kindly thought which prompted it.

A MEETING of Convocation of the University of London was held on May 10th. The chief business was the re-election of the chairman and clerk of convocation, a motion of the Standing Committee to alter the date of the autumn meeting to the *second* Tuesday in October, and the appointment of members of the Standing Committee.

H.R.H. THE PRINCE OF WALES, who is a Vice-patron of the institution, has consented to lay the foundation stone, on Tuesday, June 21st, of the extension of the University College Hospital Buildings now in course of construction through the generosity of Sir J. Blundell Maple, M.P.

HER MAJESTY THE QUEEN has been graciously pleased to sanction the following appointments to the Order of the Hospital of St. John of Jerusalem in England: Knights of Grace: Sir Richard D. Powell, Bart., M.D. Lond., and Mr. William Hamerton Jalland, F.R.C.S. Eng.

SOME disappointment was felt at the Royal Society's conversazione on Wednesday last that Professor Dewar's recently announced achievements were not demonstrated. It is stated that he has succeeded in liquefying helion as well as hydrogen in fair quantity.

H.R.H. THE PRINCE OF WALES has fixed Wednesday, June 8th, at the Hotel Cecil, for the dinner at which he has graciously consented to preside on behalf of the National Society for the Prevention of Cruelty to Children.

THE IRISH LOCAL GOVERNMENT BILL.

I.

THE introduction of the Irish Local Government Bill, which will no doubt speedily pass into law, marks an important epoch in the history of the sister island. An attempt is being made to introduce into that country those principles and methods of democratic government in rural districts which have already been tried in England and Scotland with, on the whole, satisfactory and encouraging results. However critics may find fault with the county councils and however much the action and policy of some of those councils may have left them open to censure no one doubts that the establishment of such engines of government was an inevitable step in the onward progress of democracy and no one dreams that this step should be or could be retraced. Rural government having thus been put upon a broad popular basis in England and Scotland it was only a question of time and of a short time until similar methods should be applied to Ireland. The circumstances of the sister island are no doubt in many respects exceptional and in not a few painful and difficult, but the political instinct of the British people, which has rarely been in fault in the past, has rightly suggested that a bold effort should be made to extend to Ireland the boon of popular government in rural districts. There is a general conviction among men of the most different political opinions that the attempt is just and wise—one which must of necessity be made and one which, even if attended by some temporary dangers and inconveniences, would, as Mr. Gerald Balfour said in introducing his Bill into the House of Commons, ultimately "work through failure to success." This may be said without implying any serious censure upon the present methods of local government in Ireland. No one who knows the country and who is free from political prejudice can assert that the grand juries have been either generally inefficient or extravagant or corrupt. They are composed for the most part of the leading land proprietors in the different counties, summoned nominally by authority of the High Sheriff, but really owing their position to long prescriptive right, and their discharge of their duties has been on the whole such as might have been expected from the Irish gentry—i.e., it has been well-meaning, absolutely free from all financial corruption, and in some counties singularly efficient; but in other cases it has been slack, inefficient, and unprogressive. The grand jury system, however, stands condemned not because of any gross abuses or admitted inefficiency, but because its whole basis was illogical, one-sided, oligarchical, and entirely out of touch with the tendencies of a democratic age. It

was class government and government by a class which had managed to render itself profoundly unpopular in Ireland. As Mr. Gerald Balfour truly said, "the grand jury system has no principle of growth in it. The tendency of the present day is to throw upon local bodies a number of duties which were never considered in connexion with local administration a generation ago. You cannot put new wine into old bottles and reform of local government has become almost a condition of certain further reforms."

If the necessity for reform in local administration in Ireland be conceded, no one will deny that the present time is a singularly favourable one for passing a thorough and satisfactory measure. In these columns we take no account of party questions, but it must be evident to anyone who has followed the trend of recent politics that the present Conservative and Unionist Government is exceptionally fortunate in bringing forward a first-class Irish measure at a time when men of all shades of political opinion are prepared to give it a candid and sympathetic hearing. That irreconcilable attitude towards reform which has wrought such havoc in other countries and which has before now obstructed progress in Irish affairs seems for the present to have been abandoned by the various Irish parties, who are apparently united in their admission of the necessity for reform and their desire to make that reform thorough, consistent, consonant with the tendencies of a democratic age, and such as will hold out some reasonable prospect of permanence. This unanimity is encouraging and is of good augury for the future of the country.

The measure now before the House of Commons aims at applying to Ireland those general principles of local administration which are already at work in England and Scotland, but with certain modifications which are rendered necessary and expedient by the special circumstances of the sister island. The Scotch system differs in certain particulars from the English. The Irish will differ from both the Scotch and the English. Thus, "in England," as Mr. Balfour said, "we have county councils, district councils, and parish councils. In Scotland we have only county councils and parish councils. ..... In Ireland it is not proposed to establish parish councils. The parish has never been in Ireland an area of local administration, and to create parish councils there would merely be to add a superfluous complication to our scheme. We propose that local administration in Ireland should be distributed between county councils, urban district councils, rural district councils, and boards of guardians. ..... This fourfold division will, however, in the majority of cases be practically reduced to a threefold division, inasmuch as any person who is elected a member of a rural district council will represent the area for which he is elected not only as a district councillor, but also as a guardian, and where the union is wholly confined within the administrative county the union will be coincident with the rural district and the board of guardians will be the rural district council under another name." The county councils will take over the functions at present exercised by the grand juries and presentment sessions of counties, and the rural district councils will take over the powers of the baronial presentment sessions. Any proposed expenditure on roads or other public works payable by the rural district council will be referred by that council to the county council, which may approve or disapprove. If it approves, the work will be carried out by the county surveyor, under the direction of the county council. The county council will also be the sole rate-collecting authority in rural districts. In order to provide a link between the rural district councils and the county councils it is arranged that the chairmen of all rural district councils shall be *ex officio* members of the corresponding county council. The franchise will in all cases be the existing Parliamentary franchise, with the additional provision that peers and women shall possess votes. Ministers of religion of all denominations are precluded from sitting upon any of the councils. This is a provision which is sure to give rise to much difference of opinion, but the preponderance of view will probably be found to be in favour of the proposal of the Government. The transfer of grand jury powers to county councils will be limited to the fiscal and administrative powers of the grand jury and will not extend to their present criminal jurisdiction or their powers in relation to compensation for malicious injuries. The present Board of Control exercising control over lunatic asylums will be abolished and the appointment by the Lord-Lieutenant of boards of governors and of officers of asylums will cease. "It will hereafter be the statutory duty of county councils to provide and maintain sufficient accommodation for the lunatic poor in the county and to manage the lunatic asylum. For this purpose they will act through a committee of the council, or where an asylum district comprises more than one county through a joint committee, in which each council will be represented in proportion to the expenditure which it has to defray in connexion with the asylum. One-fourth of the members of a committee may be appointed from persons other than county councillors." The appointment and removal of the officers of asylums will rest with the county council, acting through their committee, but the concurrence of the Lord-Lieutenant will be required in the case of a resident medical superintendent and of the assistant medical officer. To this provision, which is so important to the medical profession, we shall subsequently return. As regards the methods of dealing with cases of exceptional distress, unfortunately not an unusual condition of things in Ireland, the Bill provides that when a board of guardians considers a state of exceptional distress to exist within its union requiring relaxation of the conditions of outdoor relief they may apply to the county council. If the county council thinks that the circumstances justify the application they may request the Local Government Board to issue an order authorising the guardians, subject to the prescribed conditions, to administer relief outside the workhouse for a limited time from the date of the order to poor persons of any description resident in the distressed area. If the Local Government Board issues such an order the county will become liable for one-half of the extra expenditure incurred by the board of guardians in administering this special form of relief. These provisions are intended to obviate the necessity for passing a special Act of Parliament each time that such cases arise. The rural district councils will assume the powers and duties of the existing rural sanitary authorities. The county electoral divisions are to be fixed by the Local Government Board. Six towns and cities will be constituted county boroughs—viz., Dublin, Belfast, Cork, Limerick, Londonderry, and Waterford. The government of these boroughs will go on as before except that their councils will be elected on the Parliamentary franchise and they will obtain such powers and duties of county councils generally as they do not already possess. In the case of other towns and boroughs every place which is now or shall become an urban sanitary district will be an urban district under the Bill and its affairs will be administered by an urban district council. All urban district councils shall be the road authority for their district. The urban district councils will have the duty of levying and collecting all rates within their district. *Ex officio* Poor-law guardians are to be abolished. This was an inevitable concession to democratic ideas, although it cannot be truly said that *ex-officio* guardians abused their privileges or contributed an objectionable element to these boards. Their retention was, however, manifestly impossible. The duties hitherto allotted to the guardians as rural sanitary authority will be transferred to the district councillors. The duty of levying and collecting the poor-rate will be transferred in rural areas to the county council and in urban areas to the urban council. Dispensary committees will be abolished and their functions transferred to guardians.

The financial arrangements under the Bill are bold, novel, and ingenious. Their originality, simplicity, and the generous consideration which they show for the special exigencies of Ireland are worthy of hearty recognition, and no doubt have had much to do with the generally favourable reception which the Bill has received. The occupier is to be in future liable for both the county cess and the poor-rate, whether in towns or in rural districts. The distinction between cess and poor-rate will cease, and the two will be collected together as one consolidated rate. In readjustments of rent the financial year 1896-97 is to be taken as the standard and all adjustment of rent is to be made on the assumption that there will be no increase or decrease of poor-rate and county cess taken together as compared with the total rate in the pound for county cess and poor-rate taken together in the standard year. This arrangement secures that any decrease in the rates will go to the benefit of the occupier while any increase will go to his disadvantage. The Bill provides that there shall be distributed for the benefit of the spending authorities in each year out of the Imperial Exchequer a sum equal to one-half of the county cess and one-half of the poor-rate deemed for the purposes of

the Bill to have been paid in respect of agricultural land in the standard year. This sum is to be called "the agricultural grant." Provisions are inserted in the Bill to secure that the benefit of this contribution shall go to the occupier as regards county cess and to the owner as regards poor-rate. The general tendency of these provisions will be, on the one hand, to prevent the landlord having his rents lowered in consequence of any rise in the rates and, on the other hand, to secure the tenant from having his rent raised in consequence of the relief in respect of county cess given by the agricultural grant. When the occupier of the land is also the owner he will get a double advantage out of the grant: as occupier he will get relief in respect of county cess; as owner he will get relief in respect of poor-rate. The Bill provides for union rating and district rating. As regards the former those expenses of the guardians which are now levied separately on an electoral division will be charged on a common fund raised equally over the whole union. As regards the latter the cost of roads and public works, instead of being charged specially to particular baronies, will be charged equally over the whole of the rural district, which will in most cases comprise several baronies or parts of baronies. Each of these changes will have the effect of shifting burdens, lightening them in some quarters and increasing them in others. They must, therefore, be taken into account in calculating temporary adjustments of rent as between landlord and tenant and also the amount and distribution of the agricultural grant. The effect of these provisions will be to increase the agricultural grant by £11,000 or £12,000. The total amount of this grant is reckoned at about £730,000 annually. Certain charges will be excluded—viz., charges for extra police and compensation for criminal injuries, charges in respect of railways, harbours, navigation, and special expenses under the Public Health Acts. These charges are not to be taken into account by the Land Commission in fixing fair rents. It is proposed to follow in Ireland the precedent set by the English Act of 1888 whereby the proceeds of local licence duties were transferred to the local authorities in lieu of certain annual Parliamentary grants. In Ireland the proceeds of the local licences amount to about £200,000, whereas the grants in respect of the maintenance of lunatics and certain Poor-law charges which it is proposed should be no longer paid amount to £244,000. This deficiency it is proposed to cover, and more than cover, by adding to the proceeds of the local licences a fixed annual grant from the Exchequer of £79,000. Out of the total of £279,000 thus made up it is proposed to defray the charges now met out of the grants in aid and the following additional charges: first, one half of the salary for one trained nurse in every union in Ireland if actually employed and possessing the prescribed qualification; and, secondly, where the aggegate rate levied in any year in order to meet the amount of any existing railway or harbour charge in any area exceeds 6*d.* in the pound a sum equal to one half of such excess. An increase in the lunacy charges is expected in consequence of the contemplated transference to asylums of the lunatic poor at present in workhouses.

It is proposed that the grand juries shall meet for the transaction of fiscal and administrative business for the last time at the spring assizes of 1899. The elections for the new bodies will follow immediately afterwards in March. The interests of existing officers have been protected in various ways. Generally speaking, existing officers will either be retained or have the option of retiring with the same allowance as if their office were abolished. The existing county surveyors will not be removable except with the concurrence of the Local Government Board. All new appointments will, of course, be in the hands of the county council. As regards many formal and non-contentious matters power is given to the Lord-Lieutenant in Council to deal with such matters by means of adaptation and regulation orders. These orders must be laid upon the table of both Houses of Parliament and it will be open to either House to object to them in the usual way by an address to Her Majesty.

In the above outline of this very important measure we have closely followed the lines laid down by Mr. Gerald Balfour in his speech introducing it into the House of Commons. In a future article we shall deal more in detail with some of the provisions, especially those affecting the interests and position of the medical profession. There can be no doubt that the Bill is a broad democratic measure conferring great popular benefits and not weighted by any arbitrary or irritating safeguards. The lines of the corresponding English and Scotch measures have been followed, but not in any mechanical or slavish way, and due regard has been paid to the special circumstances of Ireland. There can hardly be any second opinion regarding the generosity and ingenuity of the financial regulations. They aim at conferring substantial pecuniary benefit upon a poor country, at restraining extravagance, and at giving the elective bodies the full benefit of any economy which they may exercise. All distinction of interest between one class of ratepayers and another is, as far as possible, obliterated. Much will depend upon the spirit in which the Act is received and administered. At present the omens are favourable. There is little active opposition to the Bill in any quarter. Some of the Irish Unionists regard it with apprehension, but others, to their great credit, heartily welcome it not only as inevitable but as likely in the long run to confer great practical benefits. The results are in the hands of the people, who may make serious mistakes but who are sure in the end to discover where their true interests lie. It is to be hoped that the gentry, whose existing privileges are to a large extent swept away by the Bill, will accept the new *régime* and seek their natural position as leaders of the people in the elective bodies about to be constituted.

LOCAL GOVERNMENT (IRELAND) BILL: MEMORIAL OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE following is the memorial presented by the Royal College of Surgeons in Ireland to the Chief Secretary for Ireland in respect of the Local Government (Ireland) Bill:—

To the Right Honourable the Chief Secretary for Ireland.

THE MEMORIAL OF THE PRESIDENT, VICE-PRESIDENT, AND COUNCIL OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

Showeth:—That your memorialists have considered the provisions of the Local Government (Ireland) Bill, so far as they affect the Fellows and Licentiates of this College and the medical profession generally and they respectfully submit for your consideration the following expression of their opinion thereon:—

1. The College regards the existing system of election of poor-law medical being also sanitary officers as very unsatisfactory, inasmuch as it has the effect of giving, and, in fact, has given, predominance in the election of such officers to considerations other than the competency of candidates for office and the necessities of the sick poor. The College, without desiring to deprive the local authorities of their legitimate influence in the selection of medical officers, considers that it should not be open to guardians or dispensary committees to place in charge of the sick poor persons who may be entirely inexperienced and whose competency for the special duties confided to them may be entirely unguaranteed. The College, therefore, submits that all candidates for such appointments should be subjected to a previous competitive examination in which a knowledge of their special duty as medical officers, as sanitary officers, and as public vaccinators could be verified.

2. The College is strongly of opinion that in this Bill adequate provision should be made to enable Poor-law medical officers to retire upon a pension as of right, if incapacitated from duty by ill-health, or upon abolition of their offices, or after completion of the period of service required from Civil servants. The College begs to remind you that the unlimited discretion vested in guardians by the existing law has in numerous cases inflicted extreme hardship on worn-out medical officers and has had the effect of retaining such officers in their appointments long after they had ceased to be capable of efficient duty to the great disadvantage of the sick poor of their districts. The College urges that inasmuch as medical officers have been recognised by Parliament as entitled to pension and have been placed by the Local Government Board in the position of Civil servants in regard to the amount of that pension it is but right that they shall be treated in all respects as Civil servants in this matter.

3. The College submits that the occasion afforded by this Bill should be availed of to improve the sanitary service in Ireland by providing adequate supervision by superintendent

medical officers of health. It must be evident that the system of relegating the sanitation of a district to a dispensary medical officer, uncontrolled by any superior officer and altogether dependent on local guardians, has had the effect in very many instances of rendering nugatory the law provided by Parliament, and the College is of opinion that no improvement in the existing condition of things can be hoped for until a supervising medical officer devoting his whole time to his function shall be provided to superintend the sanitation of the group of districts committed to his care.

4. The College is of opinion that it is indispensable to the efficiency of the future administration of district lunatic asylums in Ireland that the experience and competency of future resident medical superintendents and assistant medical officers should be guaranteed by requiring as a qualification for these offices a sufficient proof of previous service in a public asylum, together with such other safeguard as may be deemed necessary.

5. That the College, having already addressed you on the subject of the future administration of county infirmaries in Ireland, refrains from further reference to the subject.

Your memorialists, therefore, earnestly request you to avail yourself of the opportunity afforded by this Bill to reorganise in regard to the subjects above referred to the public medical service of this country.

(Signed)
WILLIAM THOMSON, Knt., President.
ROBERT L. SWAN, F.R.C.S., Vice-President.
CHARLES A. CAMERON, Kt., F.R.C.S., Secretary of the College.
ROBERT H. WOODS F.R.C.S., Secretary of Council.

LEAD POISONING IN POTTERIES.

IN answer to the question which Mr. Coghill put to the Home Secretary in the House of Commons on April 22nd as to whether, to prevent the serious evils arising from the use of lead in the manufacture of china and earthenware, he would appoint a small committee of scientific experts to ascertain if it were possible to use a glaze which would be entirely free from lead in its composition, the Home Secretary replied that he was taking steps to secure the services of two eminent scientific experts to test and report on the various glazes, but it must be clearly understood that the inquiry could deal only with the question of the comparative danger or safety of different materials. The further question how far materials found to be harmless, or relatively harmless, lent themselves to the practical requirements of each section of the trade, was one for the manufacturers to decide by experiment. He felt sure that he might count on their coöperation in this matter and their readiness to adopt satisfactory substitutes, if such should be found, for the dangerous glazes now in use.

We were under the impression that the subject had been fully inquired into by a thoroughly competent committee some years ago. And our impression is not wrong. We have before us a copy of a "Report to Her Majesty's Principal Secretary of State for the Home Department on the Conditions of Labour in Potteries, the Injurious Effects upon the Health of the Workpeople, and the Proposed Remedies." The report is dated July, 1893, and was presented to Mr. Asquith, the Home Secretary at that time. The members of the committee were as follows:—S. W. May (Superintending Inspector of Factories), chairman; J. T. Arlidge, M.D., F.R.C.P. Lond., W. D. Spanton, F.R.C.S. Edin., A. P. Laurie, M.A., B.Sc., F.R.S.E., J. H. Walmsley (H.M. Inspector of Factories); and W. Dawkins Cramp (H.M. Superintending Inspector of Factories), secretary. We may briefly abstract their findings and observations.

1. The proposal to substitute leadless glazes must be deemed impracticable after a careful consideration of the evidence.

2. The proposal that all the lead required in the glaze should be first fused (with borax, silica, &c.) and only this "fritted lead" be used in the glaze was worthy of careful examination, especially as the process seemed to involve no very great alteration in the present methods of manufacture.

3. Some firms are now fritting all their lead and claim that it is an improvement on the older methods; others do not regard it as practicable. The fact, however, that more than one important firm is using it for all classes of work shows that it is reasonable to suppose that the fritting of lead might ultimately be found universally practicable.

4. Mr. A. P. Laurie carried out some important experiments with a view of determining the solubility of fritts in weak hydrochloric acid. He found that all the fritts were much better than raw lead, being much less soluble in weak acid and therefore less dangerous to introduce into the stomach.

5. The committee recommended (we repeat that this was nearly five years ago) that steps should be taken by circular from the Home Office or otherwise to bring before manufacturers the advisability of experimenting with and testing the use of glazes and colours in which all the lead has been fritted and their effects upon the health of the workpeople; also that the committee should be empowered to continue investigations as to the composition of glazes and colours with a view of finding out how far it is practicable to make a glaze which shall be harmless to those employed in the manufacture and at the same time shall not injure the ware.

6. The following are quotations from the evidence of practical men and representatives of large potteries. "Fritted lead is as consistent with practical pottery as using the lead in the raw state." "The fritted lead is an easier flux than raw lead." "The workmen have no proof that fritted lead is non-poisonous, but believe it to be so." "Fritted lead can be used universally without injury to the trade, it does better for colours, and increases the brilliancy of the ware." "He never knew" (this came from a witness employed by one of the largest pottery firms) "of a single case of lead poisoning where all the lead was fritted." "Fritted glaze is better for coloured and printed ware as well as for white ware. Colours used in a glaze which has been fritted are not altered. Even the turquoise blue over glaze is fritted and the colour is not affected." The managing director of the same firm said that it would be advantageous to the manufacturers to fritt all the lead before use. When he found that fritted lead was being used for majolica and ornamental ware and that there had not been a case of lead poisoning in the department he turned his attention to the matter. Lead must be used. He found fritted lead was quite satisfactory for glazing both for china and earthenware. The ware is more brilliant and even with constant rough usage he had not observed a piece yet "crazed." He did not think a rule prohibiting the use of raw lead would injure any manufacturer. A district surgeon stated before the committee that at a majolica works in Burslem they use fritted glaze or colour and the health of the workers is good. In a letter placed before the committee two German manufacturers, after referring to the law in Germany, quoted an instance of having to pay a dipper who was affected by the lead and who lost the use of his eyes. They concluded: "We used to use our raw white lead in the glaze, but after the experience we had we now fritt it all." Two English manufacturers wrote: "There is not the slightest doubt that the lead is far less dangerous to the workpeople when vitrified. Nevertheless it is dangerous and all enamel makers have to contend with illness through lead poisoning although no free lead is used. The fact is the acids of the stomach do dissolve glass made from lead. We beg to state that we incline to the opinion of the workpeople you mention, that if the oxide of lead contained in the glaze is fritted before being ground for use the danger of lead poisoning is greatly minimised if not entirely avoided."

Against these statements there is the evidence of three English firms, manufacturers of china and earthenware. The following are extracts from their statement: "Any interference with the amount of free lead in glazes would mean absolute closing of one branch of our manufacture in which we have again and again tried to use fritted lead without success, and it would seriously cripple other branches"; "We have tried the plan of fritting the entire glaze, but without success so far"; "We have experimented for years with glazes but have not succeeded in dispensing with lead in its raw state; when fritted the character is so altered that we have failed to successfully work at it." Another firm wrote: "We have, however, made many experiments of fritted lead, &c., which are certainly encouraging and invite further effort."

Surely the Home Secretary could not have been aware of this inquiry and the unmistakeable trend of its conclusions when he gave the answer that he was taking steps, &c., to

have various glazes tested and reported upon and that he trusted he might count on the cöoperation of the manufacturers in this matter and their readiness to adopt satisfactory substitutes, if such should be found, for the dangerous glazes now in use. Surely the remedy was long ago indicated in the terms of this report which was drawn up after careful investigation nearly five years ago. We earnestly commend these facts to the Home Secretary and trust that in the name of humanity he will take steps to minimise as far as this report indicates it possible the grave liabilities to which the workpeople in potteries are exposed and of which quite recently numerous examples have occurred. We maintain that in view of this report no further inquiry is needed and every moment's delay in the Legislature's bringing reform to bear on this serious question may be responsible for further disaster. We believe that the compulsory use of fritted glaze would be a difficulty to small manufacturers, but if a system could be established by which these could be supplied with the glaze ready for use no valid objection on the score of increased working expenses or practical disadvantages could possibly be urged.

LORD CROMER'S REPORT ON EGYPT FOR 1897.

LORD CROMER'S Annual Report on the Finances, Administration, and Condition of Egypt makes its appearance this year later than usual. Dated Cairo, Feb. 27th, it was not presented to Parliament until the beginning of the present month (May). "As each successive year of the British occupation of Egypt passes by," says his lordship in conclusion, "two facts acquire an ever-increasing degree of prominence. The first is that the present *régime*, which has now lasted for fifteen years, has conferred, and is still conferring, the utmost benefit on the Egyptians and on all who are concerned in the welfare of Egypt. The second is that, whatever be the defects of that *régime*—and it cannot be doubted that, whether the matter be regarded from the English or from the Egyptian point of view, it possesses certain defects—the circumstances are such as to render it impossible to substitute any preferable system of government in its place. A satisfactory solution is certainly not to be found in any premature movement in the direction of more effective Egyptian autonomy, or in internationalising the Egyptian Government, or, lastly, in any combination of either of these two systems."

It would be impossible to state the case more clearly or more truthfully. Egypt having been sick unto death is now out of danger, if not absolutely convalescent, but she requires good food and plenty of it to enable her to grow perfectly strong and healthy. The defects alluded to by Lord Cromer are all remediable, but before they can be made to disappear it is essential that the English officials should be permitted freely and without exotic hindrance "to apply the knowledge they have acquired elsewhere to the good of Egypt." During fifteen years they have had many difficulties to contend with in addition to those indigenous to the soil, and although each year the former have been gradually lessening they still exist to a heartbreaking extent. It is really most unfair to ask the champions of law and order to continue fighting *in perpetuum* with their right arms tied behind their backs. Egypt is in many ways the country of marvels, and not the least of these is the fact that in spite of international entanglement, in spite of the glorious but expensive operations in the Soudan, our Egyptian Minister has been able to lay before Lord Salisbury "a record of appreciable progress in every branch of the Administration."

Following his customary arrangement Lord Cromer begins by explaining the accounts of the preceding twelvemonth, and notwithstanding the "intricacies of the Egyptian financial system" he contrives to convey a remarkably clear idea of his subject in wonderfully few words.[1] During the year the sums accruing to the two international reserve funds (which on Dec. 31st, 1897, showed a united credit-balance of £E.6,600,000), together with the revenue surplus of £E.433,000, amounted altogether to £E.1,443,000; but this large sum, unfortunately, was not clear gain. About £E.467,000 was realised from the sale of Daira and Domains land, which of course means a corresponding reduction in available assets, while the million remaining was more or less absorbed in order to cover extra military expenditure. Apparently the Egyptian Government still owes Her Majesty's Government the sum of £E.571,000; but when finally summing up the situation Lord Cromer is nevertheless able to say, "In spite of the expenses of the Soudan expedition, the aggregate indebtedness of Egypt has, during the past year, been decreased by £E.229,000, or £235,000," which is certainly a very satisfactory consummation.

Under the head "Medical Administration" some interesting facts are noticed. "Over 20,000 patients were received in the Government hospitals during 1897, being about 1000 in excess of the number in 1896 ..... Thirty-five new dispensaries were opened, thus extending medical aid to districts remote from a hospital. Four of the oases of the Libyan Desert, including that of Siwa, have now been provided with medical officers and dispensaries. ..... Kasr-el-Aini Hospital at Cairo, which contains accommodation for 420 patients, is now, in the opinion of competent authorities, in no degree inferior to similar institutions in the most advanced countries in Europe. ..... Four new hospitals were built in the provinces. ..... A bacteriological institute has been constructed and placed under a skilled bacteriologist." The most encouraging item of all, however, is quoted by Lord Cromer from a report by Rogers Pasha: "It is satisfactory to note not only a general improvement in organisation, but a higher tone amongst the Egyptian sanitary officials in the provinces, and now that the reorganisation of the Medical School is being seriously considered, I look for further improvement in this respect." Without a good and honourable executive no administrator can effect reforms. This elevation in tone is one of the most convincing signs of progress that we have so far observed. In this connexion Lord Cromer adds: "I hope next year to be able to report that the reorganisation of the Medical School has been carried into effect. The matter recently formed the subject of special inquiry at the hands of a highly qualified authority, Dr. Cooper Perry, who came from England for this purpose." Considerable space is also devoted to the Cairo Lunatic Asylum and hasheesh smoking.

In conclusion, although it is true that no great advance has taken place in the general sanitation of Egypt, still the subject is fully recognised as a most important one, and as soon as funds are forthcoming we shall no doubt hear of town sewerage on a large scale as well as other important sanitary works. In the meantime "some slight progress is being made"; 376 mosques have been cleansed, 465 cemeteries have been dealt with, the Khalij has been closed, a supply of pure drinking water has been provided in certain provincial towns, slaughter-houses have been built, and everywhere, but especially in Cairo, surface cleanliness has been immensely improved.

[1] The following example will suffice to exhibit the intricacy Lord Cromer alludes to: Owing to international exigencies the expenditure during 1897 had to be returned as £E.429,000 in excess of the estimate, whereas in reality it was £E.35,000 on the right side! A discrepancy of £475,000 sterling, or nearly half a million.

A FOURTH REPORT TO THE REGISTERED PRACTITIONERS OF ENGLAND AND WALES.

LADIES AND GENTLEMEN,—In my first report to you on the work of the General Medical Council (to which you appointed me as one of your Direct Representatives) I communicated to you instances of serious unconstitutional action on the part of the President of the Council. It was generally hoped, both within and without the Council, that with the appointment of a new President a stricter observance of constitutional procedure would ensue and that the efficiency of the work of the Council would be notably promoted.

I regret to be obliged to report to you that immediately upon the recent appointment to the Presidential chair there has been committed by the President a deliberate attack on the rights of individual members of the Council and a new and very serious infringement of constitutional government.

The facts are as follows. After the November Session of last year I commenced a research among the valuable

archives of the Council to determine—first, the exact position of many legal questions concerning the practice by medical men of their profession; secondly, the methods according to which the legal work of the Council is conducted; and thirdly, the cost to the Council of such legal work.

For several months—i.e., up to April 7th last—I carried out my investigations, visited the office from time to time, and inspected such documents as were necessary for the elucidation of different points, the Registrar producing the same when requested.

In the course of my work I became aware of certain grave matters which I communicated without reserve to Sir William Turner, the then acting chairman. Upon April 7th—the President having been elected on April 5th—I suddenly received notice from the Registrar that he was instructed by the President to refuse me any access to any document or financial paper belonging to the Council unless I had previously obtained the permission of the Executive Committee or of the Council. Having ascertained that the Registrar was acting solely under the President's instruction I wrote to the President and asked him: (1) by what regulation of the Council or legal enactment he sought to debar me of my right and privilege to inspect the documents of the Council for the purpose of preparing work for the Council's session; (2) whether he included all documents in his embargo; and (3) whether he considered that he, like his colleagues, was similarly debarred from inspecting any document unless he had previously obtained the permission of the Executive Committee or Council.

I regret to have to report that the President has complicated his extraordinary action by refusing to answer any of my questions.

The constitutional point thus raised is so simple that I need not extend the position save to explain that of course the Medical Acts and Standing Orders of the Council confer no such power, as that which the President claims, upon that officer, and that I am taking all steps that may be necessary to clear away this novel and foolish hindrance to my work for the execution of which you appointed me.

Cavendish-square, W., May 6th, 1898. VICTOR HORSLEY.

MEDICAL REFEREES UNDER THE WORKMEN'S COMPENSATION ACT, 1897.

THE Workmen's Compensation Act of 1897 is one of considerable moment to the medical profession. Out of the vast total of serious accidents to workmen, after making due allowance for those in which the question of compensation may be dealt with by agreement, there must remain many in which dispute will arise on that score, and among these not a few in which there will be need for judicial and authoritative decision of medical points upon which the evidence is inadequate. The Act provides for the appointment of medical referees for the purpose, and the Home Secretary with the concurrence of the Treasury has now formulated the conditions of appointment and the details of the machinery by which the references are to be made. They will be received with satisfaction by the profession. We are glad to see, by the memorandum issued recently,[1] that Sir Matthew White Ridley has recognised the importance of securing the services of men of experience and professional status for this new and important office which will often involve the delicate and difficult task of deciding where medical evidence is conflicting. The medical referee is not to be a witness, but rather an assessor or *amicus curiæ*, a judicial capacity in which a man of less experience than the medical witnesses would find himself in a false position. Wisely therefore the fees have been fixed upon a scale which, though not excessive, is liberal, and the formalities of reference seem to have been carefully planned to meet as far as possible the convenience of the referee and to spare him unnecessary trouble. The references will come to him through the registrar of the county-court, so that they will be in proper order from the outset. Without some provision of the kind there must have been many misdirected applications to the wrong referee, causing loss of time and needless trouble to all concerned. For this and other practical reasons the adoption of the county-court areas seems to offer distinct advantages, and the county-court circuits are conveniently wide and well-defined. It is implied in the memorandum that most of the appointments will be given to those having special experience on the surgical side of practice, and properly so, since the questions referred, whether of diagnosis or prognosis, will usually be of a surgical character. At the same time it seems to be contemplated that a certain number of physicians, and in some districts ophthalmic surgeons also, are to be selected, as the local circumstances may require.

It is difficult to form any estimate of the amount of work which will fall to medical referees in general and still more difficult in respect of any particular circuit. Time alone can show how many disputes will arise and how many of these will call for reference. There would seem to be little probability of extensive recourse to the kind of appeal allowed by Schedule I. (11)—appeal, that is, by the workman direct to the referee for a certificate of continued disability in case the employer proposes to terminate an allowance granted under the Act. Here the workman has to pay a fee to be agreed upon between the referee and himself and in this case alone the Government, having no power to repay the fee out of public funds, have not been able to fix its amount. It may be anticipated that the most reasonable fee will seem excessive and therefore be deterrent to the workman as the weekly allowance at stake must be small. Probably some sort of general understanding as to the fee to be asked in such cases will be arrived at and half-a-guinea would seem to be a proper sum. However, the amount of work under this head is not likely to be large.

The task of selection of suitable referees for every part of the United Kingdom is a sufficiently formidable one, especially as the time is short. That it will be made carefully and with due regard to the importance of the issues at stake is certain, and there should be no lack of candidates of the right stamp in any of the districts. The appointment of medical referee will come to be regarded as one of the most honourable public offices to be held by the profession, and it is a matter of no small importance that at the outset it should be undertaken by men of high standing.

[1] Vide THE LANCET, April 23rd, 1898.

THE ROYAL COMMISSION ON THE METROPOLITAN WATER-SUPPLY.

THE twenty-first meeting of the Royal Commissioners was held at the Council Chamber of the Westminster Town Hall on Monday, May 10th. With the exception of Sir John Dorrington and Mr. Cripps all the Commissioners were present. The commencement of the sitting was occupied with the examination of Mr. Deacon, who, on the suggestion of Sir George Barclay Bruce, had prepared a paper giving in tabular form a digest of the evidence which he had prepared to give the Commissioners at the last meeting. This table we hope to print *in extenso* shortly. Sir Alexander Binnie, the chief engineer of the London County Council, was present at the sitting and was prepared to give evidence with regard to the diagrams which Mr. Deacon had put in at a former meeting of the Commissioners. Arrangements had, however, been made that the representatives of the several London vestries should be heard at this sitting and Sir Alexander Binnie's evidence was therefore postponed until next week. The evidence given by Mr. Deacon with regard to the reservoirs and the comparative cost of the Welsh scheme and the Staines reservoir scheme will be best understood from the study of the table which we shall publish shortly, and in the present place we record the chief facts which were given in the course of his cross-examination.

Mr. DEACON said that the length of the aqueduct from Wales to London would be about 150 miles. With regard to the distribution of the water Mr. Deacon thought that the water from Wales and from the Thames should be distributed mixed or separate as occasion required. He did not approve of a supply of water from the Thames and looked upon it as a necessary evil, for an evil it undoubtedly was. The water derived from Wales would probably be filtered before distribution and the filtration would take place at Elstree, where the chief reservoir north of the Thames would

be situated. There was no sanitary reason for the filtration of the water.

In answer to Sir GEORGE BARCLAY BRUCE the witness said that there was very little peat in the Welsh water, and in answer to Mr. MELLOR he stated that it contained only a small quantity of sand after a heavy rainfall, that this sand would be deposited in the reservoir in Wales, and that none of it would pass through the aqueduct. The height of the Welsh reservoir was to be 606 ft., and that of the reservoir at Elstree 312½ ft., above the sea level.

In answer to Mr. RICKARDS, counsel for the Chelsea Company, the witness said that the level of the filter beds at Elstree would be about 30 ft. below that of the reservoir, and water to Westminster which is at present supplied by the Chelsea Company would be supplied from Elstree. In another answer to Mr. Rickards the witness said that he did not remember the height of the Putney Heath reservoir, which is the one which at present supplies Westminster with water. With regard to the calculations he had given in his table he had not reckoned the cost of connecting the reservoir at Elstree with the reservoirs which were at present in the hands of the various metropolitan water companies. With regard to the amount of the flow of the Thames the witness pointed out that if a largely increased supply were taken from the Thames so that the flow of the river was reduced to 200,000,000 gallons a day, the amount of water passing down the Thames through London would be reduced to a greater extent than had previously been the case. It followed from that that in a year of drought during the summer and autumn months the state of the River Thames would be more impure than it is at present in consequence of the further reduction of the flow. With regard to the expenses which would be incurred in carrying out the Welsh scheme in addition to those given in the table, the witness said that he had not allowed anything for Parliamentary and legal expenses, and an allowance for these must be added to that necessary to carry out the connexions between the new reservoirs which would be made to receive the Welsh water and those already in use and belonging to the metropolitan water companies.

In answer to Sir GEORGE BARCLAY BRUCE the witness stated that the filtration of the water at present was not adequately carried out. Dr. Frankland and Dr. Koch agreed that drinking water should not contain more than 100 bacteria per cubic centimetre. At the present time water supplied by the metropolitan companies sometimes contained a great excess of bacteria; in one case as many as 16,000 instead of 100 had been found per cubic centimetre. Filters were not always in proper working order. Dr. Frankland's reports gave an example in which a filter bed belonging to the Southwark and Vauxhall Water Company had been used with unsatisfactory results, and he had also recorded a "microbial epidemic" which had affected all the London water except that supplied by the New River Company.

In answer to Major-General SCOTT the witness said that it was true that the conditions obtaining in the rockwork below the filter-beds had not been thoroughly investigated, but the witness thought that the microbes passed through the filter-beds.

In answer to the CHAIRMAN he said that the chief causes of difficulty with regard to the filtration were (1) deficiency in the area of filter beds; (2) deficient storage capacity which prevented the water from "settling" for a sufficient time before it was put on the filter beds; and (3) improper management of the filter beds. Improvements had recently taken place, but formerly it was not unusual for a workman to go round and make holes in a filter bed to allow water to pass through.

Mr. WILLIAM FRANCIS DEWEY, vestry clerk to the parish of St. Mary, Islington, gave evidence with regard to the water-supply of that district. The parish of Islington, he said, contained over 3000 acres. The population in 1895 was over 336,000 and at the present time it was computed to be 350,000. The annual rateable value amounted to nearly £2,000,000. The vestry had undertaken to supply electricity to the parish for public and private purposes and had taken over the powers of the Commissioners for Baths and Public Washhouses. The water-supply was derived from the New River Company and the supply had been found on the whole to be satisfactory "both as to quantity and quality," the vestry, however, complained of the price which they had to pay for water which was used for non-domestic purposes—for flushing sewers, for baths, and for the works connected with electric lighting. The amount of water used for baths was very considerable. At the Hornsey-road baths nearly 38 000,000 gallons were used annually and at Tibberton-square baths, 24,000,000 gallons. The price charged for this water was at the rate of 7½*d.* per 1000 gallons. For street watering nearly 64,000 gallons were used, for which the price paid was 8½*d.* per 1000 gallons. The charges made by the company were based on the New River Company Act of 1852 (15 and 16 Vict. cap. cxl.).

On referring to the Act, the CHAIRMAN suggested that if the water were taken by meter the statutory charge was 6*d.* per 1000 gallons, and that if the vestry bought the water by meter that that was the price which should be paid for it. The witness said that the vestry had protested against the price which they were asked to pay for the water and he was given to understand that the New River Company would rather not have their custom. The only grievance which the vestry had against the company was the excessive price which they had to pay. At the present time an artesian well was being sunk for the vestry and the engineer reported that there was a good supply.

Mr. BAGGALLAY, Q.C., on behalf of the New River Company, asked how it was that the vestry, if they were aggrieved as to the price which they paid, did not avail themselves of the Act of 1847 (10 Vict. cap. xvii.). Under this Act the price might have been fixed by two justices. The following may be quoted as the reasoned opinion of the vestry as to the charges at present made:—

> The vestry approves of the provisions of the Metropolitan Water Act of last year so far as those provisions extend, but is of opinion that its scope should be extended so as to provide for the constitution of a tribunal for apportioning an equitable rate of charge for non-domestic supplies and that such tribunal should also be empowered to settle disputes as to the rates of charge for such supplies similar to that provided for by Section 68 of 10 and 11 Vict. cap. 17, for determining disputes as to the annual value of a tenement supplied with water.

The CHAIRMAN suggested that this inquiry might possibly awaken the vestry to a knowledge of the present right which they had to insist on the paying of nothing in excess of the statutory charges.

Mr. HUGH ALEXANDER, chief sanitary inspector for the parish of St. Leonard, Shoreditch, gave evidence on behalf of his vestry. Resolutions to the following effect have been passed by the vestry:—

> 1. That this vestry are of opinion that the management of the water-supply of the metropolis should be under one authority, and that authority should be the London County Council. 2. That unless and until the water-supply is placed under the management of the London County Council this vestry are of opinion (*a*) that the local authorities should have the power to approve or disapprove, from a sanitary standpoint, of the cisterns or other means of storage enforced by the water companies, and to require a sufficient pressure to supply the highest dwellings in their respective districts; (*b*) that local authorities should be empowered to expend money for the purpose of having the water analysed from time to time. 3. That this vestry are of opinion that the area of supply of the East London Waterworks Company in this parish should be transferred to the New River Company (in accordance with the vestry's resolution of Sept. 15th, 1896).

Mr. ALEXANDER said that the East London Water Company had introduced a constant supply within the parish for more than twenty years. A constant service was introduced by the New River Company to the district in the year 1877 and cisterns were removed from the houses. In the summer of 1895 the East London Water Company ceased to give a constant supply. A Commission of Inquiry was appointed by the Government and Colonel Ducat and the late Dr. Barry reported that in their opinion the inconvenience experienced by consumers was much aggravated by the want of proper means for domestic storage of water; and, further, that for the protection of the consumer against unavoidable temporary intermissions of the supply they considered that there would be distinct advantage in having properly designed means for storage of water in houses; and that although nothing could be further from their intention than to advocate any return to the old defective cisterns with their moveable wooden covers they advocated the provision of "properly designed cisterns." In consequence of this report cisterns had been reintroduced, but they were not satisfactory and the vestry had no power to insist on the form of cistern which should be adopted. Mr. Alexander showed a drawing of a patent cistern and air valve which he had invented. The cistern contained 200 gallons. He wished, he said, that it had been invented by someone else so that he might have spoken more fully of its merits. He pointed out, however, that the cistern was self-cleansing, the principle being, as the Chairman remarked, that nothing accumulated at the bottom of the cistern because in consequence of its sloping arrangement all solid

particles at once went down the supply pipe to the consumer. In the course of his evidence the witness showed samples of water which he stated had been taken from the cisterns of the inhabitants of Shoreditch. One of these bottles contained a deposit of nearly an inch of solid matter and another contained a dead mouse. At the present time the witness said that both the New River and the East London companies insisted that cisterns should be supplied to houses to which they gave fresh supplies. He contended that it was impossible for vestries to ensure that cisterns should be kept carefully cleansed and that it was necessary that properly designed cisterns should be provided. The only one with which he was acquainted was that which he had himself invented. The number of supplies in the district was 15 800 and the cost of the cistern which he had invented was £10.

Towards the end of the sitting Mr. HENRY GEORGE HILLS gave evidence on behalf of the board of works of the Wandsworth district.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN extraordinary meeting of the Council was held on May 4th, Sir WILLIAM MAC CORMAC, Bart., the President being in the chair.

Mr. C. S. Tomes, F.R.S., was introduced and after signing the by-laws was admitted a Fellow of the College.

A letter was read from the Secretary of State for Foreign Affairs enclosing a copy of a despatch from the British Ambassador at Rome, which reported that the Italian Government do not contemplate making any change in the laws with respect to the status of medical men of other countries in Italy.

The PRESIDENT stated that he had written to Lord Salisbury expressing the thanks of the Council for the steps he had taken in the matter.

The Council proceeded to consider the report of the General Medical Council on the Midwives Registration Bill and finally adopted in the main the conclusions at which the General Medical Council arrived, embodying their opinion in the following resolutions:—

(1) That the Council consider that it is desirable that measures should be taken to protect lying-in women of the poorer classes from the grave risk which they now incur from the unregulated practice of midwives, many of whom are ignorant and unskilful, and most of whom pursue their calling without due medical supervision.

(2) That to this end it is desirable that every woman who, not being a registered medical practitioner, engages for gain in practice as a midwife should be subjected to legal regulation and control.

(3) That any measure which proposes merely to protect the title of "Midwife," however defined, and does not make illegal and penal the unlicensed practice of midwifery for gain, cannot be regarded as offering a sufficient safeguard in the interest of the public health.

(4) That some central body should be established by Parliament whose functions should include the framing of the conditions under which midwives may be licensed and of the regulations under which alone they shall be allowed to practise.

(5) That the conditions and regulations so framed should be subject to the approval of the General Medical Council, and if and when so approved should be issued to the local sanitary authorities by the State Department which is concerned with the public health.

(6) That every woman before beginning to practise as a midwife in any district should be required to take out a licence to be granted by the local sanitary authority of the district under the prescribed conditions and regulations. That such licence should be subject to annual renewal and should be revocable at any time in case the holder is proved to have infringed any of the prescribed regulations.

(7) That any unlicensed woman, whether calling herself a midwife or not, who, not being registered under the Medical Acts, practises as a midwife for gain in any district should be made liable to a substantial penalty.

(8) That the conditions under which licences are granted should include the production of satisfactory evidence of character and of training and experience in the conduct of natural labour and in the nursing of lying-in women and new-born infants.

(9) That the regulations under which licensed midwives are required to practise should include provisions securing that the midwife shall immediately seek qualified medical assistance in every case which presents symptoms of difficulty, abnormality, danger, or disease on the part of the mother or of the new-born infant.

And that in so far as the Bill is not in accordance with these general principles the Council do not regard it as offering an adequate solution of the question under consideration and would earnestly deprecate its passing into law in its present form.

It was further resolved that these resolutions should be communicated to the Privy Council and also to those who have charge of the Bill in the House of Commons.

The Council also directed that Mr. Rowland Humphreys, the honorary secretary of the Midwives Bill Committee, should be informed of the decision of the Council.

A letter was read from the Solicitor of the College reporting that the claim of the College for exemption from corporation duty was heard on April 28th and 29th and that judgment was given in favour of the Crown except as regards the conservator's house, which was considered to be exempt from duty, this partial success relieving the College from having to pay the costs of the Crown.

The question of the desirability of appealing against the decision of the Court was postponed to the next meeting.

THE ROYAL SOCIETY CONVERSAZIONE.

THE past year of scientific work has been a busy one judging from the harvest of results exhibited in the rooms of the Royal Society at Burlington House last Wednesday. In number, interest, and variety the exhibits were, we venture to think, a distinct advance on recent years. Every branch of science seems to have contributed its own piece of evidence of the activity of the workers concerned. And the audience was an appreciative one, finding subject for reflection and fruitful discussion on every side.

Perhaps the latest advance in medicine was best represented in the instructive exhibition for which Sir Richard Thorne, K.C.B., F.R.S., and Dr. Copeman were jointly responsible. The subject of the exhibit was the bacteriology of vaccine calf lymph in which the unquestionable advantages of glycerinated lymph were convincingly illustrated. The exhibit was divided into two sections, glycerinated and unglycerinated lymph, with cultures showing the growth of adventitious microbes in the one, and the absence of development in the other. Medical visitors would be attracted, too, by the simple forms of sphygmo-manometers shown by Dr. Leonard Hill and Mr. Harold Barnard, F.R.C.S. The instruments possess the advantage that in measuring arterial pressure the changes due to temperature for barometric pressure are avoided. Photography is an ever-widening field of study and begins now to form a large portion of the annual exhibits. Mr. Mackenzie Davidson showed his ingenious and accurate localising apparatus and close by could be seen some excellent and realistic stereoscopic x-ray photographs by means of a Wheatstone stereoscope. Mr. Campbell Swinton exhibited some pretty x-ray effects. He demonstrated the existence of a positively electrified stream proceeding from the anode and in the opposite direction to the cathode stream. On the same table was a Roentgen camera showing the position, dimensions, and form of the source of the x rays in a Crookes tube. The image of the active anti-cathode area is thrown upon a fluorescent screen by means of a pinhole, and the image may be photographed. Mr. Swinton also showed a cathode ray lamp consisting of an x-ray tube containing a piece of lime. The electrical bombardment of molecules upon this substance raises it to a very high temperature and it at length becomes brilliantly incandescent and as powerful as the arc light. It is said that the efficiency of the light appears to be much superior to that obtained in ordinary incandescent electric lamps and may even exceed that of the arc. The application of the Wimshurst machine to radiography was shown by Mr. Wimshurst himself. The advances in colour photography were illustrated in Dr. Selle's process by Mr. R. B. Roxby. In this process the negatives are taken through red, blue and green glass screens respectively. From these, three collodion positives are produced, which after development in complementary colour baths are super-imposed, the result giving the complete picture. Mr. C. V. Boys showed some little glass plates made with 230 zones inscribed thereon, in consequence of which they become similar to a lens in effecting the formation of an image. Photographs taken with these lens substitutes were exhibited. The extraordinary photographic results recently obtained by Dr. W. J. Russell formed an exceedingly interesting exhibit. The pictures taken on photographic plates were produced as is now assumed by vapours from certain metals and certain organic bodies. These emit a radiation which acts upon the silver film. One very interesting application of the discovery is the intensification of faded writing by its means. Thus on wrapping a nearly illegible

piece of writing by Priestly in contact with a negative a photographic result was obtained decidedly more distinct than the original. The process is, of course, conducted in the dark.

Wireless telegraphy was practically demonstrated by Professor Oliver Lodge and Dr. Alexander Muirhead. One station was at the end of the library and the other in the secretary's room, each station receiving and transmitting alternately. The increasing application of micrography in the arts and industries was in evidence. Thus Mr. T. Andrews showed by means of micrographic illustrations the deterioration in steel rails under known conditions of main line service. This study has afforded a means of determining the microscopic structure and composition best adapted to ensure endurance and safety in rail service. A similar demonstration was given by Professor Roberts-Austen and Mr. J. E. Stead, the former also exhibiting an ingenious apparatus designed by M. Berthelot for the determination of high temperatures. Close by, Mr. A. E. Tutton showed an ingenious method particularly applicable to the investigation of the thermal expansion of crystals. An exhibit which attracted considerable interest was that of Professor W. A. Herdman and Professor R. Boyce showing the causes of the colouration of healthy and unhealthy green oysters and the connexion between oysters and disease. The presence of a copper compound was micro-chemically demonstrated. The Marine Biological Association had its usually occupied corner and this time the subject of exhibition was "The Adaptations of Marine Animals to their Environment, illustrated by Living Examples of the Higher Crustacea." One of the largest displays was the excellent series of photographic pictures brought back by Sir Norman Lockyer from the expedition which took observations in India of the total solar eclipse of Jan. 22nd, 1898. Similar observations made by the Eclipse Committee of the British Astronomical Association were also admirably illustrated in a group of photographs. A pretty experiment, which was missed by many because it was demonstrated in a room on the ground floor, was that undertaken by Mr. C. T. R Wilson. It referred to the production of cloud by the action of ultra violet light. When the light from an arc lamp is brought by means of a quartz lens to a focus within a vessel containing moist, dust-free air, a bluish fog gradually develops along the path of the light. The effect is entirely prevented if the ultra violet rays be cut off by interposing a sheet of glass or mica, no cloud or rain resulting under these conditions even when supersaturation is brought about by sudden expansion. Possibly the small particles which give rise to the blue of the sky are produced by the ultra-violet rays of sunlight absorbed in the upper layers of our atmosphere. On the same floor was exhibited the apparatus used in the navy for determining the position of ships afar off. The accuracy of this range-finder under good conditions of working may be taken as 1 per cent. at 3000 yards. The instruments were exhibited by Professor Barr and Professor Stroud. Lastly, Mr. Joseph Gould repeated some of his instructive experiments in relation to resonance, and the latest addition consisted of a demonstration of dust-heaps vibrating under the influence of a vibrating bar of metal, and bursting in a most odd way into whirling nebulæ and ultimately condensing into gravitating systems of circular mounds.

The guests and Fellows were received by the President, Lord Lister, and there was a distinguished and very representative company present.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 6351 births and 3750 deaths were registered during the week ending May 7th. The annual rate of mortality in these towns, which had declined in the five preceding weeks from 21·5 to 18·4 per 1000, further fell last week to 17·4. In London the rate was 16·9 per 1000, while it averaged 17·8 in the thirty-two provincial towns. The lowest rates in these towns were 10·9 in Croydon, 12·4 in West Ham, 12·9 in Cardiff, and 13·3 in Burnley; the highest rates were 20·8 in Newcastle-upon-Tyne, 20·9 in Huddersfield, 21·1 in Oldham, and 28·2 in Liverpool. The 3750 deaths included 408 which were referred to the principal zymotic diseases, against 473 and 468 in the two preceding weeks; of these, 157 resulted from measles, 114 from whooping-cough, 50 from diphtheria, 34 from diarrhœa, 29 from scarlet fever, 23 from "fever" (principally enteric), and 1 from small-pox. No death from any of these diseases was recorded last week in Birkenhead, Burnley, Preston, or Huddersfield; in the other towns they caused the lowest death-rates in Portsmouth, Croydon, and Swansea; and the highest rates in Wolverhampton, Derby, Gateshead, Sheffield, and Liverpool. The greatest mortality from measles occurred in London, Bristol, Wolverhampton, Halifax, and Bradford; from scarlet fever in Burnley; and from whooping-cough in Liverpool, Salford, Sheffield, Gateshead, and Newcastle-upon-Tyne. The mortality from "fever" showed no marked excess in any of the large towns. The 50 deaths from diphtheria included 27 in London, 3 in West Ham, and 3 in Liverpool. One fatal case of small pox was registered in Gateshead, but none in London or in any other of the thirty-three large towns; and no small-pox patients were under treatment in any of the Metropolitan Asylums Hospitals. The number of scarlet fever patients in those hospitals and in the London Fever Hospital was 2271 on Saturday last, May 7th, against 2384, 2334, and 2302 at the end of the three preceding weeks; 209 new cases were admitted during the week, against 217, 241, and 205 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 283 and 274 in the two preceding weeks, further declined last week to 226 and were 104 below the corrected average. The causes of 51, or 1·4 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Cardiff, Manchester, Leeds, and in ten other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Salford, Bradford, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had declined from 24·2 to 21·8 per 1000 in the five preceding weeks, further fell to 21·7 during the week ending May 7th, but exceeded by 4·3 per 1000 the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 17·7 in Leith and 18·6 in Paisley, to 23·1 in Dundee and 34·0 in Perth. The 654 deaths in these towns included 29 which were referred to whooping-cough, 27 to measles, 24 to diarrhœa, 5 to "fever," 4 to scarlet fever, and 1 to diphtheria. In all, 90 deaths resulted from these principal zymotic diseases, against 88 and 96 in the two preceding weeks. These 90 deaths were equal to an annual rate of 3·0 per 1000, which was 1·1 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of whooping-cough, which had been 25 and 34 in the two preceding weeks, declined to 29 last week, and included 18 in Glasgow, 4 in Paisley, 2 in Edinburgh, and 2 in Aberdeen. The deaths from measles, which had increased from 14 to 35 in the three preceding weeks, declined to 27 last week, of which 23 occurred in Glasgow and 2 in Edinburgh. The deaths referred to different forms of "fever," which had been 5 and 2 in the two preceding weeks, rose again to 5 last week, and included 4 in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 151 and 137 in the two preceding weeks, further declined to 129 last week, and were slightly below the number in the corresponding period of last year. The causes of 29, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·3 and 25·4 per 1000 in the two preceding weeks, declined again to 24·5 during the week ending May 7th. During the past four weeks the death-rate in the city has averaged 25·1 per 1000, the rate during the same period being 17·8 in London and 20·1 in Edinburgh. The 164 deaths registered in Dublin during the week under notice showed a decline of 6 upon the number in the preceding week, and included 9 which were referred to the principal zymotic diseases, against 13 and 9 in the two preceding weeks; of these, 3 resulted from whooping-cough, 3 from

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1898.

(Specially compiled for THE LANCET.)

SANITARY AREAS.	Estimated population in the middle of 1898.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,504,766	4	1221	744	2	122	2	23	347	—	2465	7·1	—	461	54	132	246	—	27	1	45	966	2·8	6140	18·1	137
West Districts.																									
Paddington	127,480	—	19	13	—	1	—	1	10	—	44	4·5	—	27	—	3	4	—	2	—	—	36	3·7	160	16·4	105
Kensington	172,174	—	28	19	1	5	—	—	17	—	70	5·3	—	29	2	1	3	—	1	—	1	37	2·8	224	17·0	164
Hammersmith	107,370	—	35	6	—	—	—	1	6	—	48	5·8	—	21	—	2	8	—	—	—	1	32	3·9	152	18·5	160
Fulham	125,275	—	61	22	—	—	—	—	11	—	94	9·8	—	4	1	5	3	—	—	—	2	15	1·6	139	14·5	103
Chelsea	86,713	—	26	21	—	1	—	—	4	—	52	7·0	—	14	2	5	1	—	2	—	—	24	3·2	145	19·5	115
St. George Hanover-square	80,648	—	12	14	—	4	—	1	2	—	33	5·3	—	6	—	—	3	—	1	—	—	10	1·6	91	14·7	155
Westminster	52,574	1	6	17	—	1	—	—	2	—	27	6·7	—	10	—	4	10	—	—	—	1	25	6·2	84	23·3	163
St. James Westminster	22,200	—	4	—	—	1	—	—	1	—	6	3·5	—	4	—	—	—	—	—	—	—	4	2·3	29	17·0	200
North Districts.																									
Marylebone	140,483	1	28	18	—	4	—	1	11	—	63	5·8	—	30	—	5	5	—	—	—	2	42	3·9	246	22·8	138
Hampstead	78,765	—	12	9	—	1	—	—	5	—	27	4·5	—	2	1	—	4	—	1	—	1	9	1·5	80	13·2	216
St. Pancras	243,416	—	59	33	—	6	—	4	17	—	119	6·4	—	11	2	6	6	—	—	—	—	25	1·3	343	18·4	135
Islington	344,616	—	100	60	—	12	—	1	17	—	190	7·2	—	59	3	12	27	—	2	—	3	106	4·0	469	17·7	162
Stoke Newington	34,660	—	13	3	—	—	—	2	1	—	19	7·1	—	—	1	1	3	—	—	—	1	6	1·9	42	15·8	73
Hackney	219,630	—	68	59	—	10	—	1	18	—	156	9·3	—	9	2	16	13	—	1	—	2	43	2·6	263	15·6	109
Central Districts.																									
St. Giles	37,519	—	5	3	—	1	—	—	5	—	14	4·9	—	3	—	—	1	—	1	—	1	6	2·1	59	20·5	136
St. Martin-in-the-Fields	12,424	—	1	1	—	2	—	—	—	—	4	4·2	—	—	—	—	—	—	—	—	—	—	—	11	11·5	214
Strand	23,284	—	5	16	—	—	—	—	2	—	23	12·9	—	1	1	1	1	—	—	—	—	4	2·2	41	23·0	50
Holborn	30,056	—	3	9	—	1	—	—	4	—	17	7·4	—	13	—	2	2	—	—	—	1	18	7·8	71	30·8	203
Clerkenwell	66,120	—	18	11	—	—	—	—	5	—	34	6·7	—	10	2	5	5	—	—	—	1	23	4·5	117	23·1	129
St. Luke	41,016	—	17	9	—	—	—	—	2	—	28	8·9	—	4	1	1	7	—	—	—	—	13	4·1	57	30·8	188
City of London	29,088	—	7	3	—	1	—	—	—	—	11	4·9	—	—	—	—	—	—	—	—	—	—	—	32	14·3	86
East Districts.																									
Shoreditch	121,485	—	45	20	—	4	—	1	16	—	86	9·2	—	7	4	1	10	—	1	—	3	26	2·8	192	10·6	139
Bethnal Green	129,027	—	30	20	—	8	—	—	19	—	77	7·8	—	25	—	6	15	—	2	—	1	49	5·0	219	22·1	176
Whitechapel	80,559	—	8	14	—	3	—	—	5	—	30	4·9	—	1	1	1	4	—	—	—	1	9	1·5	111	18·0	92
St. George-in-the-East	48,241	—	10	12	—	—	—	—	2	—	24	6·5	—	4	1	1	5	—	—	—	1	12	3·2	85	23·0	174
Limehouse	58,661	—	16	2	—	1	—	—	5	—	24	5·3	—	4	—	1	5	—	1	—	3	14	3·1	98	21·8	146
Mile End Old Town	112,528	—	26	20	—	2	1	—	9	—	58	6·7	—	12	1	2	5	—	—	—	1	21	2·4	153	17·7	116
Poplar	170,220	—	66	28	—	8	—	—	8	—	110	8·4	—	18	3	7	22	—	2	—	2	54	4·1	269	20·6	183
South Districts.																									
St. Saviour Southwark	24,562	—	5	4	—	2	—	—	2	—	13	6·9	—	1	—	—	—	—	—	—	—	1	0·5	40	21·2	166
St. George Southwark	60,466	—	23	12	1	1	—	1	3	—	41	8·8	—	1	3	1	2	—	—	—	—	7	1·5	87	18·8	123
Newington	123,183	—	32	22	—	1	—	1	15	—	71	7·5	—	4	—	4	1	—	1	—	4	14	1·5	183	19·4	157
St. Olave Southwark	11,288	—	3	2	—	—	—	—	3	—	8	9·2	—	1	—	—	1	—	—	—	—	2	2·3	17	19·6	188
Bermondsey	85,738	—	16	6	—	1	—	—	13	—	36	5·6	—	3	3	1	2	—	—	—	—	9	1·4	118	17·9	125
Rotherhithe	40,849	—	8	9	—	1	—	1	4	—	23	7·3	—	7	2	1	—	—	—	—	1	11	3·5	67	21·4	182
Lambeth	304,073	—	102	35	—	9	1	1	14	—	162	6·9	—	16	4	7	11	—	5	—	2	45	1·9	406	17·4	123
Battersea	171,921	—	74	42	—	2	—	2	18	—	138	10·5	—	18	2	6	5	—	—	1	—	32	2·4	208	15·8	116
Wandsworth	242,526	—	88	39	—	3	—	1	21	—	122	7·9	—	19	—	11	3	—	1	—	—	34	2·2	226	14·6	110
Camberwell	261,189	2	48	37	—	6	—	—	20	—	113	5·6	—	23	2	10	21	—	1	—	2	59	2·9	314	15·7	115
Greenwich	180,441	—	42	34	—	16	—	1	17	—	110	7·9	—	18	3	—	16	—	1	—	1	29	2·8	247	17·8	126
Lewisham (excluding Penge)	88,562	—	20	14	—	2	—	—	2	—	38	5·6	—	11	5	—	5	—	—	—	2	21	3·1	115	16·9	161
Woolwich	41,478	—	13	8	—	1	—	—	7	—	29	9·1	—	5	—	—	2	—	—	—	3	10	3·1	63	19·8	160
Lee	39,717	—	19	15	—	—	—	—	4	—	38	12·5	—	1	1	3	2	—	—	—	—	7	2·3	40	13·1	79
Plumstead	62,531	—	30	3	—	—	—	2	—	—	35	7·3	—	5	2	—	5	—	—	—	1	13	2·7	77	16·1	144
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 28 cases of membranous croup.

† Including deaths from membranous croup.

"fever," 1 from scarlet fever, 1 from diphtheria, and 1 from diarrhœa. These 9 deaths were equal to an annual rate of 1·3 per 1000, the zymotic death-rate during the same period being 2·4 in London and 1·6 in Edinburgh. The fatal cases of whooping-cough, which had been 2 and 3 in the two preceding weeks, were again 3 last week. The deaths referred to different forms of "fever," which had been 2 in each of the two preceding weeks, rose again to 3 last week. The mortality from scarlet fever and from diarrhœa corresponded with that recorded in the preceding week. The 164 deaths in Dublin last week included 36 of infants under one year of age, and 40 of persons aged upwards of sixty years; the deaths of infants showed a further increase, while those of elderly persons were below the numbers recorded in any recent week. Five inquest cases and 1 death from violence were registered; and 68, or more than a third, of the deaths occurred in public institutions. The causes of 13, or nearly 8 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING APRIL, 1898.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality during April in each of the forty-three sanitary areas of London. With regard to the notified cases of infectious diseases in the metropolis last month, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to 7·1 per 1000 of the population, estimated at 4,504,766 persons in the middle of this year. In the three preceding months the rates had been 8·2, 7·8, and 7·4 per 1000 respectively. Among the various sanitary areas the rates were considerably below the average in Paddington, St. James Westminster, Hampstead, St. Giles, St. Martin-in-the-Fields, City of London, and Whitechapel; while they showed the largest excess in Fulham, Hackney, Strand, Shoreditch, St. Olave Southwark, Battersea, and Lee. Four cases of small-pox were notified in London during April, against 3 in each of the three preceding months; of these, 1 belonged to Westminster, 1 to Marylebone, and 2 to Camberwell sanitary areas. No small-pox patients were under treatment during last month in any of the Metropolitan Asylum Hospitals. The prevalence of scarlet fever in London showed a slight increase upon that recorded in the preceding month; among the various sanitary areas this disease showed the highest proportional prevalence in Fulham, Poplar, St. George Southwark, Battersea, Lee, and Plumstead. The Metropolitan Asylum Hospitals contained 2270 scarlet fever patients at the end of April, against 3021, 2640, and 2358 at the end of the three preceding months; the weekly admissions averaged 218, against 232, 214, and 208 in the three preceding months. The prevalence of diphtheria in London during April showed a further decline from that recorded in the two preceding months; this disease was proportionately most prevalent in Chelsea, Westminster, Hackney, Strand, Holborn, St. George-in-the-East, and Lee sanitary areas. There were 923 diphtheria patients under treatment in the Metropolitan Asylum Hospitals at the end of April, against 1055, 1042, and 1009 at the end of the three preceding months; the weekly admissions averaged 111, against 132, 140, and 129 in the three preceding months. The prevalence of enteric fever in London during April showed a slight decline from that recorded in March; among the various sanitary areas this disease showed the highest proportional prevalence in St. Martin-in-the-Fields, Bethnal Green, St. Saviour Southwark, and Greenwich. The Metropolitan Asylum Hospitals contained 59 enteric fever patients at the end of April, against 106, 84, and 64 at the end of the three preceding months; the weekly admissions averaged 12, against 11 and 12 in the two preceding months. Erysipelas was proportionally most prevalent in Shoreditch, Bethnal Green, St Olave Southwark, and Bermondsey sanitary areas. The 23 cases of puerperal fever notified in London during April included 4 in St. Pancras, 2 in Stoke Newington, 2 in Battersea, and 2 in Plumstead sanitary areas.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various sanitary areas of the metropolis, the deaths occurring in the institutions of London having been distributed among the various sanitary areas in which the patients had previously resided. During the four weeks ending Saturday, April 30th, the deaths of 6240 persons belonging to London were registered, equal to an annual rate of 18·1 per 1000, against 22·0, 21·4, and 20·8 in the three preceding months. The lowest death-rates in the various sanitary areas were 11·5 in St. Martin-in-the-Fields, 13·1 in Lee, 13·2 in Hampstead, 14·3 in City of London, and 14·5 in Fulham and in Wandsworth; the highest rates were 22·1 in Bethnal Green, 22·8 in Marylebone, 23·0 in Strand and in St. George-in-the-East, 23·1 in Clerkenwell, and 30·8 in Holborn and in St. Luke. During the four weeks of April 966 deaths were referred to the principal zymotic diseases in London; of these, 461 resulted from measles, 246 from whooping-cough, 132 from diphtheria, 54 from scarlet fever, 45 from diarrhœa, 27 from enteric fever, and 1 from an ill-defined form of continued fever. These 966 deaths were equal to an annual rate of 2·8 per 1000; no fatal cases of any of these diseases were registered during the month under notice in St. Martin-in-the-Fields or in the City of London; in the other sanitary areas they caused the lowest death-rates in Hampstead, St. Pancras, Whitechapel, St. Saviour Southwark, St. George Southwark, Newington, and Bermondsey; and the highest rates in Westminster, Islington, Holborn, Clerkenwell, St. Luke, Bethnal Green, and Poplar. The 461 fatal cases of measles were 184 above the corrected average number in the corresponding periods of the ten preceding years; this disease showed the highest proportional fatality in Paddington, Hammersmith, Westminster, Marylebone, Islington, Holborn, Bethnal Green, and Rotherhithe sanitary areas. The 54 deaths referred to scarlet fever were 11 below the corrected average number; the mortality from this disease was highest in Shoreditch, St. George Southwark, Bermondsey, and Lewisham sanitary areas. The 132 fatal cases of diphtheria were within 3 of the corrected average number; among the various sanitary areas this disease showed the highest proportional fatality in Chelsea, Westminster, Hackney, Clerkenwell, Bethnal Green, and Lee. The 246 deaths from whooping-cough were 39 below the corrected average number; the mortality from this disease was highest in Westminster, St. Luke, Shoreditch, Bethnal Green, St. George-in-the-East, and Poplar sanitary areas. The 27 fatal cases of enteric fever were 3 below the corrected average; the mortality from this disease showed no marked excess last month in any of the sanitary areas. The 45 deaths from diarrhœa were 9 below the corrected average number. In conclusion, it may be stated that the mortality in London last month from these principal zymotic diseases was nearly 14 per cent. above the average, owing to the excessive fatality of measles, the deaths from each of the other zymotic diseases being below the average.

Infant mortality in London, measured by the proportion of deaths of children under one year of age to registered births, was last month equal to 137 per 1000. Among the various sanitary areas the lowest rates of infant mortality were recorded in Fulham, Stoke Newington, Strand, City of London, Whitechapel, and Lee; and the highest rates in St. James Westminster, Hampstead, Holborn, St. Martin-in-the-Fields, St. Luke, St. Olave Southwark, and Woolwich.

THE SERVICES.

NAVAL MEDICAL SERVICE.

THE under-mentioned Fleet-Surgeons have been promoted to the rank of Deputy Inspector-General of Hospitals and Fleets: Thomas Lyle Horner; Edward Elphinstone Mahon, C.B.; and John C. Birkmyre Maclean.

The following appointments are announced:—Deputy Inspectors-General: Thomas Bolster to Hong-Kong Hospital; Thomas L. Horner to Haslar Hospital; and William Cook to the *Crescent*. Fleet-Surgeons: Richard D. White to the *Ramillies*; John Tyndall to the *Excellent*; Gerard J. Irvine to Haslar Hospital; and William B. Drew to Royal Marine Depôt, Walmer. Staff-Surgeons: Norman L. Richards to the *Dido* and William S. Lightfoot to the *Pembroke*. Surgeons: A. E. Kelsey to the *Victory*, additional; D. W. Hewitt to the *Vivid*, additional; and Algernon C. Bean to the *Triton*.

ARMY MEDICAL STAFF.

Surgeon-Major H. E. R. James succeeds Surgeon-Lieutenant-Colonel H. Grier as second in command and Instructor of the Army Medical Depôt and Training School, Aldershot. Surgeon-Captain Jameson and Surgeon-Captain Beach join at Woolwich for duty. Surgeon-Major Carleton

is transferred from Dublin to the Cork District. Brigade-Surgeon-Lieutenant-Colonel Supple has embarked in the *Dunera* for service in South Africa.

Surgeon-Major Patrick J. Nealon, M.D. R.U.I., half-pay, retires from the Service, receiving a gratuity. Surgeon-Major Francis H. Treherne, from the Seconded List, to be Surgeon-Major, vice E. D. Bringhurst-Farmar.

INDIA AND THE INDIAN MEDICAL SERVICES.

Surgeon-Colonel Hendley, C.I.E., is appointed to be Inspector-General of Civil Hospitals, Bengal. The services of Surgeon-Major Thompson (Madras), and Surgeon-Major Kavasji Cursetji Sanjana (Madras) are replaced at the disposal of the Government of Madras. Surgeon-Lieutenant-Colonel Ranking, Secretary to the Board of Examiners, is appointed to act temporarily as Surgeon-Superintendent of the Presidency General Hospital, Calcutta, in addition to his own duties, vice Brigade-Surgeon-Lieutenant-Colonel Crombie, retired.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major G. G. Sparrow resigns his commission.

VOLUNTEER CORPS.

Artillery: 1st Argyll and Bute: Thomas Harvey Thomson, M.D., to be Surgeon-Lieutenant. *Rifle:* 1st (Hallamshire) Volunteer Battalion the York and Lancaster Regiment: Surgeon-Captain J. W. Martin to be Surgeon-Major. 2nd (Renfrewshire) Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Major M. H. Taylor to be Surgeon-Lieutenant-Colonel.

THE ROYAL MILITARY TOURNAMENT.

The air is so full of "wars and rumours of wars" that little or nothing is necessary at the present moment to stimulate public enthusiasm in regard to things naval and military. Nevertheless we welcome the announcement that the Royal Military Tournament will for the nineteenth time be held at the Agricultural Hall on Thursday, May 19th, and be continued until June 2nd. The pageant "Shoulder to Shoulder" will be representative of the periods 1596, 1704, 1801, and 1884, when the sister services fought side by side at Cadiz, at Gibraltar, at Alexandria, and at El Teb. The "combined display," or mimic battle, at the conclusion of each performance will this year be descriptive of the capture of Benin city and among the sailors and marines taking part in the display are many who actually shared in the dangers and honours of the expedition. During the earlier portion of the tournament the military ride will be carried out by the Royal Horse Guards (the Blues), while during the latter part of the time it will be performed by the Seventh (Princess Royal's) Dragoon Guards from Norwich. The Royal Navy will be present in twice the strength of last year and not only will they take part in the pageant and combined display but they will also give performances as a field battery, armed both with 9-pounder and 12 pounder guns. That Major-General Henry Trotter and his committee will be well supported we have no doubt, but we may remind our readers that the entire profits of the tournament, with the exception of an amount sufficient for necessary expenses, are distributed among naval and military charities.

THE SOUDAN EXPEDITION.

The active Soudan policy lately inaugurated has necessarily given rise to certain corresponding disadvantages. Although the amount of money so far spent has been almost infinitesimal in comparison with the magnificent results achieved "it is, nevertheless, obviously true," in Lord Cromer's estimation, "that that money might have been spent on other objects of unquestionable utility." It is impossible to eat one's cake and have it. The Egyptian Legislative Council and Assembly approve of the Soudan expedition and in the same breath press on the Egyptian Government the desirability of reducing taxation. Sir Elwin Palmer is an able financier, but we venture to think that even his powers will be unequal to the problem of taking one from one and leaving one. The total Soudan expenditure since March, 1896 (when it was decided to advance on Dongola), inclusive of a sum of £E.213,000 which is provided for in the estimates for the current year, has been £E.1,850,000, or in round numbers £1,900,000 sterling. Of this amount about £E.750,000 has been expended on railways and telegraphs. The balance represents extraordinary military expenditure, properly so-called; and considering the magnitude of the operations—to say nothing of the complete success which has attended Sir Herbert Kitchener's arms—it is probable that never before were similar results obtained at such an inexpensive rate.

ANNUAL MESS OF THE VOLUNTEER MEDICAL STAFF.

Sir Joseph Fayrer, Bart., presided at a most successful mess of the Volunteer Medical Staff at Limmer's Hotel on May 4th. The date unfortunately clashed with the Lord Mayor's banquet to the medical profession, yet the number who sat down was only one less than last year. The toasts were "The Queen," "H.R.H. the Prince of Wales, President of the Volunteer Medical Association," "The Volunteer Medical Association," "The Visitors" and "The Chairman." Among the guests were Colonel Campbell and Colonel J. W. Smith-Neil, Scots Guards; Colonel Alt, Colonel Roberts, Colonel Hardcastle, Colonel Kellar, Colonel Leese, Colonel Lucas, and Surgeon-Major Bedford, A.M.S, &c. Major-General Trotter and Surgeon-Colonel O'Farrell, P.M.O., who had accepted invitations, were on the sick list and unable to attend. Surgeon-Captain C. Graham Grant was responsible for the excellent musical programme and Surgeon-Captain R. Fletcher for the general arrangements. Sir Joseph Fayrer, in response to the toast of his health, made an eloquent speech on the present condition and the hopes and aspirations of the Army and Volunteer Medical Services.

VOLUNTEER AMBULANCE SCHOOL OF INSTRUCTION.

The official inspection and examination of the present class of regimental stretcher-bearers took place on Wednesday last at the Queen's Westminster headquarters, James-street, S.W., when a large number of officers, non-commissioned officers, and men, representatives of the volunteer corps of the Home District, went through a searching ordeal at the hands of Surgeon-Major E. M. Wilson, C.M.G., Army Medical Staff, and Surgeon-Lieutenant R. M. Cooper, Grenadier Guards. After the inspection in line the class was taken through the stretcher and hand-seat drill and then each member had a *viva voce* examination in "First aid." At the conclusion Surgeon-Major Wilson addressed the men and expressed himself very pleased with the excellent manner in which the work had been done throughout. He then presented the prizes to those who were successful at the prize competition held during the previous week. The London Scottish Rifle Volunteer Corps won the Hamilton Challenge Bowl and will hold the same until the next competition. In the unavoidable absence of Brigade-Surgeon-Lieutenant-Colonel P. B. Giles, Surgeon-Captain R. R. Sleman was in command.

THE SPANISH-AMERICAN WAR.

There has been really nothing of great importance to chronicle since the reception of the news of the crushing defeat of the Spanish fleet at Manila. The expected naval battle in the vicinity of Puerto Rico has not taken place. The United States are sending 5000 troops as a landing force at Manila and it is asserted that, in spite of the transport and military difficulties and the prejudicial effects on the health of the troops which will probably have to be encountered at this season, an American force will soon be sent to Cuba. The United States will naturally spare no effort to bring the war to an end if possible. Surgeon-General Senn (who ranks as a lieutenant-colonel) of Illinois has relinquished a lucrative practice to join the medical service of the United States.

THE ARMY BOOT.

With reference to the proceedings which have recently taken place in the House of Commons regarding the army boot Mr. William Hickson, President of the Northampton Manufacturers' Association, writes to the *Times* calling attention to the fact that the army contracts have not been undertaken in the borough of Northampton for several years and stating that Northampton manufacturers could, if they had the opportunity, supply any number of boots more suitable than the article now delivered.

DEATHS IN THE SERVICES.

Surgeon-Captain James Walker, A.M.S., at Jacobabad, Upper Sindh, on April 23rd, from pneumonia, aged twenty-eight years.

Deputy Surgeon-General Samuel Bowen Partridge, I.M.S. (Bengal), C.I.E., at his residence at Anerley, aged sixty-nine years. The deceased was one of Her Majesty's Honorary Surgeons and was lately a member of the India Office Medical Board. He also at one time held the post of

Professor of Surgery and Anatomy at the Calcutta Medical College and was surgeon to several hospitals in India.

HER MAJESTY'S VISIT TO NETLEY.

The arrangements made for the Queen's visit to Netley to-day (Saturday) are:—Her Majesty will leave the Windsor station of the Great Western Railway at half-past two o'clock in the afternoon by special train and will travel *viâ* Reading to Basingstoke; thence the Royal journey is over the South-Western line to Netley, which will be reached at half-past four. The Queen will leave Netley on her return at half-past five and arrive at Windsor at half-past seven.

THE LATE INDIAN BORDER WAR.

The Afridis are certainly a remarkable people; they have apparently quite accepted their position, quietly settled down, and ceased to molest us in the Khyber. The health of our troops still in the field continues to be good.

LIEUTENANT-GENERAL SIR GEORGE WHITE.

The late Commander-in-Chief in India, Sir George White, who had the misfortune to fracture his leg before leaving India, has not yet sufficiently recovered to take up the duties of Quartermaster-General of the Forces.

Surgeon Arthur R. Bankart, R N, has been appointed a Member of the Fourth Class of the Royal Victorian Order.

Correspondence.

"Audi alteram partem."

"THE DIPLOMA OF THE APOTHECARIES' SOCIETY."

To the Editors of THE LANCET.

SIRS,—The letter of Mr. Pope in THE LANCET of May 7th is so extraordinarily incorrect as to facts and issues that it must not be allowed to pass unchallenged. The statements in the letter may be summed up as follows. The action of the General Medical Council in prosecuting a certain L.S.A. Lond. for calling himself "Physician and Surgeon" is the outcome of the late election for a Direct Representative. Had a general practitioner been elected instead of Mr. Horsley the Council would, Mr. Pope suggests, have been prevented from carrying out such prosecution. I need hardly say that the conclusions at which Mr. Pope has arrived are entirely erroneous. The prosecution in question was decided upon long before Mr. Horsley's election and at the time when all the three Direct Representatives were general practitioners.

Further, to say, as Mr. Pope does, that our latest Direct Representative "has absolutely nothing in common with the general practitioner" is to make an assertion that could not be justified and one which I am sure would not be upheld by a dozen men in the whole profession. The result of the late election is in itself a striking proof of the inaccuracy of such a statement. It would be difficult, if not impossible, to find anyone in the whole profession who is more cognisant of the wants and cares of the general practitioner than Mr. Horsley. His many years' service as President of the Medical Defence Union made him daily and intimately acquainted with the troubles and dangers which surround them. For many years Mr. Horsley has worked hard in the interests of medical men generally, and to obtain for them their just rights and further protection of their practice and titles by amended legislation. He has spared neither money, valuable time, nor health and strength to ameliorate the condition of general practitioners, and whenever any action is being fought for true reform he is always found in the forefront of the battle. With regard to the unwisdom of the prosecution referred to by Mr. Pope I am sure all will agree, but he is entirely mistaken as to its origin and initiation.

I am, Sirs, yours faithfully,

A. GEORGE BATEMAN.

Devonshire-street, W., May 11th, 1898.

"PLAGUE MEASURES IN HONG-KONG."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Jan. 29th there is an annotation under the above heading in which apparently some of the Government officers are adversely criticised and, according to the writer, are presumed to be ignorant of the usual rules and regulations governing sanitation. After such a long interval it is possible that the subject will not be of much interest to your readers, but on the principle of hearing both sides of the question I trust you will see your way to publish a few remarks from one who has had eleven years' experience of the colony and most of it as assistant to the health officer of the port—more especially as your article has been published verbatim in the local newspapers. Quarantine, which incurs excessive expenditure and involves vexatious restrictions on shipping, is *per se* a relic of bygone days, and is, in my opinion, only justified when all the local conditions of each place are minutely studied and the amount of good to be derived therefrom thoroughly understood. The introduction of the recommendations of the Venice Conference *en masse* here at any rate and, I shrewdly suspect, in many other places, may well be characterised as "too ridiculous."

Hong-Kong is not, like London, a final port at which emigrants disembark and proceed to earn their living, but it is simply a port of call to which by far the larger majority come for a day or two only—some never even leaving the steamer—and then proceed on to their destination. We have the small number of 830,000 immigrants a year, or 2500 a day, to deal with, coming from places from six hours' to six days' distant and speaking every variety of dialect known and unknown to Chinese scholars. To medically inspect all these; to take the addresses of the various boarding-houses at which they are to stop—houses absolutely unknown to these ignorant coolies even after they have stopped there; to compel them to remain there until the incubation period of the disease has elapsed—which is what I take to be meant by "obtaining a guarantee that the individuals in question would remain at these addresses for a period sufficiently long to be placed under some supervision"; and to keep under observation those from a ship where a case of disease has actually occurred, seemed, and still seems, to me to be "too ridiculous" if not impossible. If this course was not recommended by the Venice Conference I am in error and quite mistaken as to the suggestions actually made. The staff of medical men, interpreters, and police required for this undertaking would be enormous and the delay and detention of vessels ruinous to all trade.

The recommendations of the Conference were to be undertaken to save the colony from small-pox, cholera, and plague. Small-pox is, as everyone knows or is presumed to know, an Eastern scourge and rages periodically all round Hong-Kong from Canton to Japan, and yet we have never had the least trouble in the way of an epidemic. Vaccination here is in full force with a Government vaccine institute and glycerinised lymph. Fifty cases (local and imported) in hospital at one time out of 250,000 inhabitants is the extent of a local epidemic. I only ask the writer to contrast this state of affairs with epidemics of this disease at home. Cholera epidemics are always prevalent in some place or other from Singapore to Shanghai and even in Japan. It is as an epidemic absolutely unknown here, thanks to our water-supply on which Government has lavishly and ungrudgingly spent millions, and the supply is now and has been for some time unequalled anywhere in the world. Plague was no doubt imported, but nothing short of the absolute intervention of Providence could have kept it out with our daily communication with China, on which we depend for our food-supply. It has come, and cases will crop up year by year as long as Chinese are Chinese, to a smaller extent in proportion as Government devote their attention to the proper housing of the natives and the sanitation of the town—far better objects on which to spend revenues than harassing shipping, which is all that quarantine ever does. I disclaim any idea of boasting, but one cannot well refrain from comparing the results of sanitary measures here carried out by various Government departments, as far as plague is concerned, with the results in India. Directly an epidemic occurs anywhere Government receives information from the consuls and medical officers at the various ports and is kept posted up to date on the subject. Bills of health are never looked at or even asked for in Hong-Kong.

I do not know what is meant by "England was forty years ago in the same position as Hong-Kong now is." As far as small-pox, vaccination, drainage, and water-supply are concerned, a great portion of England is fifty years behind this colony at the present time. Such

a state of affairs as existed at Gloucester, Maidstone, Richmond Asylum, &c., is an impossibility here. What we do and what we have done for the safety of the colony, long before the Venice Conference was ever heard of, is as follows: Whenever an epidemic breaks out in a port that port is declared infected and the governor in council may prohibit immigration and importation into this colony of all Chinese from the place infected; every vessel from thence is boarded and inspected—not by a custom-house officer (as I once saw done in London) but by a duly qualified medical man. If there are no cases of sickness the vessel is immediately released. If a case of disease exists it is promptly landed into an infectious hospital (which I venture to think compares not unfavourably with similar institutions elsewhere), the ship is disinfected and detained for twenty-four hours or longer at the discretion of the health officer of the port and if no further cases occur, released. This, I think, is absolutely sufficient and at any rate is all that is properly practicable with 2500 people a day to deal with.

I am afraid this letter is a very long one, but I for one take exception to a paper like THE LANCET inferring that this colony is behind the times in matters of sanitation, whereas in fact the responsible officers are men who in addition to professional knowledge bring also to bear on this subject a knowledge of local conditions and requirements of which the writer of the article in question seems absolutely ignorant. In conclusion, I would mention that we are so far behind England that the Government actually employs a qualified veterinary surgeon who daily inspects every animal slaughtered for food and every market in the place and I should much like to know in how many places in England such a very proper and very sanitary measure is carried out.

I am, Sirs, yours faithfully,

Medical Department, Hong-Kong, April 1st, 1898. J. BELL.

*** Whilst gladly printing the above letter we cannot pretend to agree with some of its contentions. The Venice Convention was not intended to apply merely to ports like London, but even as regards that port Mr. Bell describes conditions in Hong-Kong which agree in almost every detail with the arrival in this country of Russian and German transmigrants who passed through England to the United States during the cholera prevalence of 1892–95 and who were treated on exactly the lines which he describes as being "too ridiculous." Then again, Mr. Bell is correct, as he surmises he may be, in assigning to the Venice Convention a conclusion which finds no place in that treaty, but he is incorrect as to the diseases with which the Venice Conference had to do. It was solely concerned with plague. We are glad to endorse what he says as to the excellent sanitary work done in Hong-Kong and we know how ably the sanitary administration of the colony was utilised in the last outbreak of plague; but we hold that where such work and administration exist, the principles of the Venice Convention are adapted to deal with the introduction of such a disease as plague, although it is highly probable that they may need some modification in details.—ED. L.

"THE WALKING VALUE OF THE LESSER TOES OF THE HUMAN FOOT."

To the Editors of THE LANCET.

SIRS,—Permit me to say, with reference to Mr. Heather Bigg's quotation from "The Human Foot," that my test as to whether the toes are habitually used is a very simple one. Is the skin of the front part of the sole free from callosities? I cannot imagine this condition to exist if much walking be done, unless the toes collectively be used. When the toes are firmly pressed against the ground the long flexors, which are to the plantar arch as bowstrings or tie-rods, tend to include in it the heads of the metatarsal bones and so to uplift them. When these are borne down by the weight of the body the place of contact is determined by the position of the fixed toes; there is no sliding and therefore no friction. This advantage is of necessity lost when the tendons are attached to the heads of the metatarsal bones. Moreover, the extension of the base of support and the capacity to press on the ground all across the foot, even when the metatarso-phalangeal joints are bent, as in hill-climbing, must be of advantage, I, however, have not claimed for the smaller toes a "paramount value"; but I adhere most fully to my opinion that most people use them and that, in proportion as they are used, they are useful.

I am, Sirs, yours faithfully,

Gloucester, May 7th, 1898. T. S. ELLIS.

THE EARLY DIAGNOSIS OF MEASLES.

To the Editors of THE LANCET.

SIRS,—During the late epidemic of measles I have made one or two vain attempts to stop the spread of the disease by early isolation and have kept the other members of the family daily under observation from the time of their separation till they in turn fell ill. For a fortnight at least prior to the appearance of the influenza symptoms, although they seemed to be perfectly well and had a good appetite, the temperature persistently remained at 97°, but it at once commenced to rise directly the running of the nose and eyes commenced. I think that in cases where we are in doubt whether children have taken the infection or not this may be of service in helping us to come to a correct decision.

I am, Sirs, yours faithfully,

Surbiton, May 6th, 1898. F. P. ATKINSON.

"THE ROYAL COLLEGE OF SURGEONS OF ENGLAND AND THE CORPORATION DUTY."

To the Editors of THE LANCET.

SIRS,—Referring to your annotation on this subject, it is a matter of some regret that you have been unable to publish the case *in extenso*. The following extract may be of interest to some Members: "In delivering the judgment of the court in favour of the Crown Mr. Justice Wright said the section provided an exemption for property legally appropriated and applied for the promotion of science ..... On the authorities cited it could not be said that the property of the Royal College of Surgeons was legally appropriated and applied for the promotion of science at the time of the assessment. At the time of the original charter science might have been the main object, but the actual object at the present day was to be gathered from the later charters and the by-laws. *That object mainly was the granting of certificates or diplomas to persons desiring to become surgeons.* The balance-sheets showed that the largest source of income and expenditure was the examinations. The evidence brought before the court failed to show that the promotion of science was the main object."

The Council has always met proposals for reform or requests for the enforcement of certain by-laws with the stock argument that the College is a purely scientific institution and that its *sole* object is the promotion of the science and art of surgery. This fallacy has been exposed over and over again by Mr. Jonathan Hutchinson and others. The Council has, as we know, an immense respect for a judicial decision, especially when this is in its favour, as was the judgment in Steele *v.* Savory. We trust, therefore, that it will in future be kind enough to remember that the main object of the College as defined by a court of law is "the granting of diplomas to persons desiring to become surgeons," and that we shall hear no more of the "purely scientific" twaddle.

I am, Sirs, yours faithfully,

May 9th, 1898. W. G. DICKINSON.

PNEUMONIA, A MULTIPLE AFFECTION.

To the Editors of THE LANCET.

SIRS,—In a very interesting annotation on "Streptococcic Pneumonia," in THE LANCET of May 7th, p. 1275, you observe: "No attempt has been made in this country to differentiate what is ordinarily called 'pneumonia,' which is the name of a lesion and not of a disease, into the various diseases of which it may be a manifestation." That this is not correct will appear from a reference to a paper which I read before the Section of Medicine in the Royal Academy of Medicine in Ireland on Friday, Nov. 19th, 1897, on "Pneumonia, a Multiple Infection." An abstract of my paper was published in THE LANCET of Dec. 4th, 1897,

p. 1459. The paper itself was published in full in the *British Medical Journal* of Jan. 1st, 1898, and also in the *Dublin Journal of Medical Science* for January, 1898. I would ask you kindly to quote the two concluding paragraphs of the paper in question.

In conclusion, I venture to submit that there is clinical evidence to show that a true pneumonitis may occur in any one of the four diseases with which this communication deals—that is to say, erysipelas, influenza, tuberculosis, and enteric fever. Further, it is reasonable to suppose that in each case the pneumonitis is directly due to a localisation of the specific poison of the disease in the lung, whether that be a micro-organism itself or a toxin derived therefrom. Indeed, in respect of the four diseases named, the evidence, from a bacteriological standpoint, in favour of such a view is incontrovertible.

As regards enteric fever the influence of season and weather in determining pneumonic trouble is, no doubt, considerable; but it cannot be accepted as paramount or exclusive. And if it is objected that the bacilli typhi abdominalis of Eberth have not as yet been often found in the lungs or sputum of enteric fever patients I am justified in attributing this to the comparative infrequency with which, so far, search has been made for these bacteria in the pulmonary organs. Here, in any event, an almost untrodden path of investigation lies open to the adventurous footsteps and the keen perception of our Irish pathologists and students of bacteriology.

In my paper I show that the streptococcus pyogenes plays a part that is second to none in the production of influenza-pneumonia.—I am, Sirs, yours faithfully,

JOHN WILLIAM MOORE, M.D. Dub., F.R.C.P. Irel.

Fitzwilliam-square West, Dublin, May 7th, 1898.

THE DISTAL AERIAL CONVECTION OF SMALL-POX.

To the Editors of THE LANCET.

SIRS,—In your impression of April 9th attention is once more drawn to the question of distal aerial infection from small-pox hospitals, and it is evident that the last word has by no means been spoken on the subject. Since the theory of distal infection was first propounded by Mr. Power and adopted by the Local Government Board as a "good working hypothesis" it has been defended from attack with a persistence which is somewhat suggestive of a wavering faith.

There can be no doubt that a working hypothesis may be a very helpful thing, even though it may not be true; the atomic theory of light was such a one and it was superseded. "I began," said Harvey, "to think whether there might not be a motion in a circle"; that was his working hypothesis, but he did not stop there, for he proceeds to say, "this I afterwards found to be true," and that working hypothesis remains good to this day. Mr. Power and those who think with him have as yet attained the first stage only; they are thinking whether there may not be a motion in a circle, but they have not yet proved that it is so.

The recent case of Harrop *v.* the Corporation of Ossett (the *Times*, March 18th, 21st, and 23rd) shows this very clearly, for an experienced judge, after hearing such able exponents of the distal aerial theory as Mr. S. Murphy, Dr. Sinclair White, and Dr. Priestley, is not convinced, while the evidence of Dr. T. Orme Dudfield, Dr. Savill, and Dr. T. F. Ricketts serves to show that an influential body of the medical profession still finds difficulty in accepting the views so tenaciously upheld at Whitehall.

That a small-pox hospital in a poor and crowded locality may be, and usually is, a source of infection to the surrounding neighbourhood is not denied; it is when we come to inquire for the causes of the spread in its vicinity that doubt and difficulty arise, and it is impossible to agree with Dr. Priestley that so long as a small-pox hospital is allowed to be a source of danger, whether it be by aerial infection or by maladministration, it does not concern a medical officer of health as a matter of fact, for the question is not merely of academic interest, seeing that its solution must be of some importance, not as an argument for or against placing small-pox hospitals in crowded localities, but in view of the selection of a site within a mile of any human dwelling.

In every small-pox epidemic it is found that a certain percentage of cases around a hospital can be traced, apart from any question of maladministration, to ordinary known channels of infection, such as the incomings and outgoings of nurses, staff, tradesmen, patients, and friends of patients, and these are and must invariably be intensified as we approach such a centre as a small-pox hospital; but even after the most searching inquiry a residuum remains to which no clue has been discovered and of these it is said that they diminish in number as we get further from the hospital, which is not invariably the case, and that they are not in excess along the main approaches, which we should have no right to expect, for the people who walk in a street are not always those who dwell in it. The elimination of this residuum is always a matter of extreme difficulty, as has been shown by Dr. Orme Dudfield, Dr. Savill, and others, even when the investigation has taken place during the progress of an epidemic, much more after a lapse of weeks or months, yet it is upon the complete elimination of these cases that the theory of distal aerial infection is based. That the theory has never been disproved is no argument in its favour for the same might be said of the wonders worked by the diviner's rod. The main question is whether the theory fits in with the facts; if it does not, then it has not come to stay but must make way for some other that will. Facts, it may be said, are few, but if this is the case it would surely better become the Local Government Board to set in motion the wonderful machinery at its command for such inquiry in the public health service than to bolster up a theory in which few outside its own body will be found to believe. It is easy and sometimes convenient to treat matters of ten years ago as ancient history and as of little moment, but the fact remains that the discussion on the dangers of small-pox hospitals before the Society of Medical Officers of Health in 1885 is the most important one ever held on this subject and that the difficulties then suggested have never been met. The divergent views held as to the distance through which small-pox virus may be carried through the open air were well shown in the Report of the Hospital Commission and more recently in the Ossett case, but the point has never been settled even approximately, nor am I aware of any series of experiments with a view to its solution. Observations are wanted, especially in the country, where facts can be ascertained with much more precision than in a populous centre. There must be many available from medical officers of health and medical practitioners throughout the country if only they could be collected. The chief difficulty, however, in accepting the distal infection theory remains to be noticed—viz., the startling immunity which has over and over again been observed in large bodies of presumably susceptible individuals living near to small-pox hospitals and among whom, according to the distal aerial theory, small-pox should have appeared with an intensity proportioned to their nearness to the centre of infection. No explanation is offered for these remarkable exemptions from the incidence of a disease which (within limits still undefined) is acknowledged to be infectious above all others, and when it is borne in mind that by the chance discovery of its origin in a single case a clue might be given which would sweep away the better part or even the whole of the residuum on which the "circle argument" is based, the conclusion is irresistible that the theory of distal aerial infection rests on a very imperfect basis and that much more evidence is required before it can meet with general acceptance.

I am, Sirs, yours faithfully,

EDWARD T. WILSON, M.B. OXON, F.R.C.P. Lond.

May 2nd, 1898.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Decline of Plague Mortality in Bombay.—Important Lecture by the Medical Officer of Health.—The Outbreak at Calcutta.—The Increase of Plague in Kurrachee.

THE past week has shown an improvement in the general mortality in Bombay, but there has not been a continuance of that rapid fall in the death-rate which gave so much hope the week previously. About 1200 deaths have been registered—still continuing more than double the normal number—a rate of about 75 per 1000 per annum.

A very able and suggestive lecture has been given on the Plague by Brigade-Surgeon-Lieutenant-Colonel T. S. Weir, the medical officer of health of Bombay. In the course of his address he laid down the following measures for scientifically resisting the disease: 1. Measures for the destruction or immunisation of rats or other carriers of the microbe. 2. Measures for the retreat or escape of the population from the area of invasion. 3. Measures for the immunisation or protection of the population against the

microbe. 4. Measures for the destruction of the microbe. He held that if the rat population could be destroyed or rendered immune in advance of the disease the spread of the disease might be stopped. The microbe would be starved. The simultaneous destruction of rats over a large area is very difficult, but it ought to be attempted. Brigade-Surgeon-Lieutenant-Colonel Weir states that in his opinion the influence of the rat is necessary for the occurrence and spread of an epidemic of plague and that the evidence shows that the disease is only slightly contagious and that something more than infection from sick to healthy human beings is required to explain the development and propagation of an epidemic. In this connexion may be mentioned a theory which has recently been started and which deserves further investigation. It is suggested that under normal conditions and endemically plague is a mild disease, but that under special conditions, such as by intensification in the rat, it develops into a virulent disease. It is also asserted that an epidemic of plague among human beings having subsided lingers as a mild glandular affection. These theories, however, were not touched upon in Brigade-Surgeon-Lieutenant-Colonel Weir's lecture. He holds that segregation of the healthy to be of any effect must be carried out in advance of the disease and on a large scale. There is little doubt that if a population could be moved away from an area in which plague had appeared and away from the line of migration of rats or other rodents it might be saved, but the population must be moved in advance of the disease. This may be possible in a moderate sized town or in a village, but it is not practicable in a large city like Bombay. He argues, therefore, how much cheaper, how much quicker, how much better, and how much easier to inoculate the people. Brigade-Surgeon-Lieutenant-Colonel Weir is a great supporter of M. Haffkine's prophylactic fluid for plague and he gave facts and figures which seem unanswerable. He further laid down two very important propositions: (1) that the simple glandular form of the disease is practically not infectious; and (2) that the organism of plague does not seem to be able to develop virulently or to survive where there are free currents of air. In the simple glandular form of the disease therefore he considers it is not necessary to remove the patient from a well-ventilated building. He criticised very severely some of the measures of the Plague Committee and stated that the measures were such that the living to escape detection almost ceased to call in medical men and that not 1 per cent. of the people who died had seen a medical man in their last illness. If some of the statements contained in this address can be corroborated by further investigations they will modify very considerably the measures to be adopted in future for plague epidemics.

The few cases which have been discovered in Calcutta have been instantly isolated, the "contacts" separated, and the infected buildings burnt or thoroughly disinfected.

In Kurrachee the disease seems to be increasing daily, 195 cases with 129 deaths having occurred up to date.

April 22nd.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Salford and its Sewage.

AT the meeting of the Salford Council on May 4th Alderman Walmsley, M.R.C.S. Eng., J.P., stated that in July last a conference was held in the Salford Town Hall of representatives of the authorities in the watershed of the Irwell. 42 authorities intimated their willingness to send representatives and 67 persons, including members of the Salford Town Council, were present. The following motion was carried almost unanimously: "That in the opinion of this meeting of representatives of local authorities in the Irwell watershed the time has arrived when, owing to the advancement of scientific knowledge, it is no longer necessary or desirable that the Local Government Board should in all cases continue to insist on the disposal of sewage by land treatment." It was sent up to the Board, "but of course nothing had come of it." He thought that a step should now be taken and that a further conference should be held to formulate a plan which would either enable them to get an Act of Parliament or to compel the Local Government Board to alter its attitude on the land question. "The whole of the country was groaning under the condition laid down by the Local Government Board. The Salford Corporation had been tormented beyond measure over this business and so had the Manchester and other corporations." The Board seems to be a veritable Old Man of the Sea and the corporations so many poor Sinbads. Even in combination they are at present unable to shake themselves free.

Cottages for the Poor.

At the same meeting it was resolved to erect 36 cottages in King-street and Queen-street, the contract for which was £4678. It was stated that there was a strong feeling against tenement dwellings and so it was decided to build these cottages, each of which will have four rooms, 12 ft. by 12 ft., and the rent is to be 5*s.* 6*d.* a week. No doubt there will be a sufficient yard space and width of street, and if so there are many advantages on the side of separate dwellings over the ants'-nest sort of arrangement in what are sometimes called barrack dwellings. The destruction of cottage houses, partly on their merits and from the encroachment of railways and from various improvements, necessitate municipal action for making provision for the displaced population and this seems likely to become more extended in the future.

Manchester Sewage Again; Proposal to Revert to the Culvert Scheme.

At the meeting of the City Council held on May 4th Alderman Richards moved: "That the resolution passed on April 20th last in relation to the report of the Rivers Committee be rescinded and that the committee be instructed to revert to the culvert scheme." The City Council does not shine in the discussions on sewage disposal. There is a large amount of ignorant guessing as to estimates and the advocates of the culvert scheme have been captivated by its apparent simplicity. It is also a curious thing to see how difficult it seems to be for most of the chemically minded members of the council to see any good thing in the bacterial method, and this affection of the mind is not confined to the City Council, for no one has written more strongly against it than a deservedly eminent chemist from whom one would have expected something different. He blesses the culvert scheme, which is undoubtedly the outcome of chemical despair, or, to put it more accurately, of the despair of the chemical advisers of the Rivers Committee. It appears as if the chemical mind were unable to grasp the idea of vital action and was sceptical as to the enormous part it plays in the operations of nature. It would really be pitiful to go through the arguments adduced in favour of one scheme and against the other. But the matter is not yet settled and the discussion stands adjourned on the motion of Sir John Harwood.

Suggested Purchase of the Royal Infirmary Site.

A meeting of the special committee of the Manchester Corporation *re* the Royal Infirmary was held on May 9th and a resolution was moved by the Lord Mayor and carried unanimously to the effect that steps be taken to ascertain "if the trustees of the infirmary would be prepared to enter on the question of the disposal of the entire infirmary site." In January last the committee recommended the purchase of a portion of the site to be kept as an open space, leaving the shorn and mutilated infirmary building caged in the centre, at a cost of £286,000. This scheme fortunately fell through. During the discussions in the council hints were thrown out that if the whole of the site were obtained the infirmary might be removed altogether and on a portion of the land cleared a free reference library and a new art gallery might be built. In May last year the sub-committee, which has represented the infirmary trustees in the negotiations, suggested that the corporation should offer £550,000 for the whole of their land and buildings. The Corporation Committee said that they had no power to negotiate for the whole site and that they thought the price too high. Whether anything more than discussion will come from this move of the Corporation Committee the future will reveal. If, however, the present site of the infirmary cannot be extended sufficiently to allow of complete rebuilding on a liberal scale it would no doubt be the best solution of many difficulties for the infirmary to be taken elsewhere.

May 10th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Sir James Russell and the Plumbers' Registration Bill.

AT a public meeting held under the auspices of the District Council for Edinburgh and the East of Scotland for the National Registration of Plumbers at Edinburgh last week Sir James Russell said with regard to the Plumbers' Registration Bill that every effort would be made to have it passed through Parliament. It was, however, an unfortunate thing for the public health, not to speak of the plumbing craft, that its passage though Parliament was so difficult. Nothing but the general education of the public, he supposed, would ever lead to the passing of any Bill relating to public health.

Presentation.

On April 27th, in the Natural History Class-room, Marischal College, Dr. Alexander Brown, Lecturer on Zoology in the University of Aberdeen, was the recipient of a mahogany cabinet for microscopic slides. The gift bore the following inscription: "Presented to Alexander Brown, M.A., M.B., C.M., D.Sc., by his students in zoology on the occasion of his marriage. 14th April, 1898."

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Royal College of Surgeons in Ireland.

AT a meeting of the President, Vice-President, and Council held on May 3rd, the following were elected as examiners for the ensuing year:—Anatomy—Ambrose E. I. Birmingham and Alexander Fraser. Surgery—R. Glasgow Patteson and William Stoker. Physiology and Histology—Charles Coppinger and J. Alfred Scott. Biology—J. Alfred Scott. Pathology—Edward H. Taylor and Arthur Hamilton White. Midwifery and Gynæcology—Alfred J. Smith.—On May 6th the College addressed an important memorial to the Chief Secretary with reference to the provisions of the Local Government Bill so far as they affect the Fellows and Licentiates of the College and the members of the profession generally. In this document the opinion is strongly expressed that the existing system of election of poor-law medical—being also sanitary—officers is very unsatisfactory and the suggestion is made that all candidates for such appointments should be subjected to a previous competitive examination in which a knowledge of their special duty as medical officer or sanitary officer and as public vaccinator should be verified. Secondly, the College records its opinion that in the forthcoming Bill adequate provision should be made to enable Poor-law medical officers to retire upon a pension as a matter of right if incapacitated from duty by ill-health or after completion of the period of service required from civil servants. Thirdly, the College submits that the occasion afforded by this Bill should be availed of to improve the sanitary service in Ireland by providing adequate supervision by superintendent medical officers of health, each of whom should devote his whole time and attention to the sanitation of the group of dispensary districts committed to his care. It is to be hoped that this very important memorial will receive due attention from those responsible for the medical provisions of the forthcoming Bill. Anyone familiar with dispensary elections in Ireland will be aware that local influence—sometimes clerical—avails far more than the professional qualifications or previous medical career or personal merit of the candidate. As to the need for superannuation it is notorious that boards of guardians have frequently delayed to grant an allowance to an old or worn-out Poor-law medical officer until long after his services had ceased to be of adequate value to the poor of his district. Moreover, the principle of the new Government measure is to assimilate as far as possible matters of local government in Ireland to those which exist in England. It seems very desirable that the system of appointing superintendent medical officers of health which prevails in England should be extended to this country, where the local health officer is hampered and interfered with in his duties by the board of guardians of his narrow district, by whom he is appointed and on whom he is dependent.

Presentation to Sir William Stokes.

On Saturday, May 7th, at the Royal College of Surgeons in Ireland, Sir William Stokes, F.R.C.S. Irel., was presented with a set of plate in commemoration of the silver jubilee of his professorship of surgery in the College. An address, in which recognition of his professional and social qualities was most cordially expressed, was read and presented by Sir William Thomson, the President. The meeting, which was large and representative of the profession in Ireland, was addressed by Sir William Thomson, Sir George Duffey, the President of the Royal College of Physicians of Ireland, Sir Charles Cameron, and others.

Utilisation of the Union Infirmaries for the People.

It has been recognised on all hands that the passage of the new Local Government Bill affords an opportunity for pushing forward some of the many reforms so desirable in connexion with the system of management of the union infirmaries of Ireland. Dr. Smyth and Dr. Moorhead have recently called attention to the curious anomaly that all patients admitted to a union infirmary, even those who pay for their maintenance—and are glad to do so—are obliged first to enter the workhouse as paupers. The ban of pauperism is thus attached to the workhouse hospital and its inmates. Dr. Smyth in a letter dated March 31st proposed that these institutions should cease to be identified with the poorhouses, that they should be called "district hospitals," and that the sick poor who enter them should no longer be clad in the uniform of the pauper but be treated as ordinary hospital patients and required to contribute to their maintenance when able to do so. At a meeting of the Irish Workhouse Association held on April 23rd, presided over by Mr. Edmund Deare, D.L., and including the Countess of Fingall, Sir Francis Cruise, Sir Thornley Stoker, Sir George Duffey, Mr. Power Lalor, &c., the following resolutions were unanimously adopted:—

1. The workhouse hospitals shall henceforth be called district hospitals and the duties and powers of the guardians as regards such hospitals and the administrative control thereof shall be exercised through a committee of hospital governors appointed by the guardians, consisting either wholly or partly of members of their own body. The district hospital governors, subject to the general control of the Local Government Board and of the guardians, as regards finance may act without their acts being confirmed by the guardians and may appoint the officers of the district hospitals and regulate the expenditure.
2. That Lord Monteagle, Dr. Smyth, and Mr. John Dillon be requested to urge on the Government and on the Irish Members of Parliament the necessity of having the above amendment to Clause 23 of the Local Government Bill adopted.
3. That the Leaflet on Nursing be approved subject to amendments by Lord Monteagle and Sir Thornley Stoker, and that 3000 copies be printed, and that copies be sent to the clerk of the Poor-law Board, enclosing four for the chairman, doctor, clerk, head nurse.

The Belfast Union Infirmary.

At the weekly meeting of the Belfast Guardians on May 3rd the Local Government Board forwarded a letter for consideration. It was in the form of a complaint by a person who was for a considerable time an inmate in the infirmary and he gives his name and address. The system of pauper attendance is referred to in strong terms and it is alleged that a man of eighty years of age was "deliberately felled to the ground by a pauper attendant without the slightest provocation." The pauper barber who was appointed to shave the patients was subject to "epilepsy and when seized with a fit while shaving a patient usually left his mark behind him." The communication further drew attention to a system of blackmailing which, it was stated, was carried on by pauper attendants, the want of regulations which permitted the paupers stealing rations from the infirmary and hospital patients, the unsanitary condition of the wards and draughts in the corridors, and the lack of proper supervision, which the writer said rendered the infirmary a pandemonium instead of a place for sick persons. "In short," the letter said, "the man or woman who has no money gets no attendance here." A committee was appointed to consider this letter.

The Ulster Medical Society.

At the meeting of this society held on the 5th inst. Dr. Lowry, an old Belfast student who has for several years lived in different parts of China, read a paper on Some Notes on Tropical Diseases and Bubonic Plague taken during a residence in China, 1881–1896. Dr. E. C. Bigger opened a discussion and read a short paper upon Some of the Principal Points in the Treatment of Typhoid Fever. The President (Dr. Lindsay) having read notes on a case of Hyperpyrexia during an attack of Typhoid Fever, an

interesting discussion followed the reading of the various communications.

Belfast District Lunatic Asylum.

Mr. S. Graham, assistant medical officer of the Belfast Asylum, who has been in charge of the Purdysburn Branch, has resigned on his being appointed resident medical superintendent of the new County Antrim Asylum.

Success of a Belfast Student at Cambridge.

Dr. W. Hanna, a former distinguished student of Queen's College, Belfast, at the recent examinations held by the State Medicine Syndicate of Cambridge University for the Diploma in Public Health, obtained first place in bacteriology.

May 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Skin Grafting.

AT the meeting of the Academy of Sciences held on May 2nd M. Ollier remarked that it had long been the custom since the experiments of Reverdin to hasten the healing of wounds by grafting small pieces of skin on to the raw surface. But according to M. Ollier it is quite possible to employ large grafts containing 20, 30, or even 40 square centimetres by the use of which the wound heals without showing any cicatricial characters, the skin preserving its natural appearance. M. Ollier cited as an example of this treatment the case of a patient living near Lyons who was treated by this method for an extensive burn on the inner aspect of the leg. The injury had occurred many years previously and the wound had assumed a malignant aspect, so that amputation of the leg had been advised. After the site of the wound had been carefully scraped and cleansed eight grafts, containing from 20 to 25 centimetres of skin respectively, were applied. All the grafts took and at the end of some weeks the raw surface was replaced by real skin containing sweat-glands and hairs and in every way similar to normal skin. M. Ollier was struck by one thing, namely, the apparent increase in the size of the grafts during the course of the healing of the wound, whereas it is well known that they generally shrink. He attributed the apparent growth to the mobility of the neighbouring parts, a mobility which caused *tiraillments* in every sense.

Radiography as a Means of Certifying the Existence of Death.

At the meeting of the Biological Society held on April 23rd, M. Bougarde showed three photographs of the thorax, two of them from living persons and the third from a corpse, all taken by the x-rays. In the two first the different thoracic organs and the walls of the thorax itself exhibited a hazy outline, so that their limits could not be exactly made out. This, of course, was owing to the natural movements of the parts, the pulsations of the heart and the great vessels, and the movements of the diaphragm. Even when the subjects held their breath so as to minimise movement as much as possible the outlines were still hazy and the outline of the diaphragm was seen as a shadow varying in depth and extending over the ninth and tenth intercostal spaces. The heart and great vessels were seen to occupy the centre of the chest as a dark oval mass, the shadow of which was dense in the centre and gradually faded away towards the periphery until the almost transparent lungs were reached. In the radiograph of the corpse, however, the appearance was quite different, for all the organs had sharp and well-defined edges.

The General Association of French Medical Practitioners.

The General Association of French Medical Practitioners has just held a meeting in Paris at which several provincial delegates proposed resolutions on behalf of the various bodies which they represented. The Société de la Gironde recommended that in each Faculty instruction should be given both in medical ethics and in the departments of law which have a bearing on medical practice. The Société de la Sarthe recommended that foreign medical men who had become naturalised should be required to serve in the army, the idea being that all medical men desiring to practise ought to be subject to the same military obligations, whether they be French by birth or by naturalisation, without any special exemption for the latter. Some recommendations made by the Society of Melun, Fontainebleau, and Provins and the Society of Algeria opened up questions of reciprocity and led to a comparison of the privileges accorded on the one hand to foreign medical men practising in France, and on the other hand to French medical men practising in foreign countries. Eventually a resolution was adopted to the effect that *la faculté d'émarger aux budgets départementaux ou communaux* should be granted to foreign medical men only under exceptional circumstances. The Society of Vaucluse recommended that medical students should not serve in the army until the completion of their curriculum and that they should pass a year as officers of the Army Medical Department; a concession on similar lines was also recommended for pupils of the Ecole Centrale des Arts et Manufactures. Finally, the Société de la Gironde recommended that the university degree of Doctor should not carry with it the right to practise medicine, but that doctors of medicine of French nationality who had not been found guilty of any offence should have this right conferred on them by a jury of medical men not belonging to any teaching staff and presided over by a professor of the Faculty. The scope of the examinations conducted by this jury ought to include practical knowledge, the state of the law in relation to medicine, and medical ethics.

The Prophylaxis of Tuberculosis.

At the meeting of the Academy of Medicine held on May 3rd, M. Grancher read a report on the prophylaxis of tuberculosis, of which the following is a summary:—1. The Academy hereby confirms the resolutions arrived at in 1890 which advised the following three measures of prophylaxis: (α) all sputum should be collected in a pocket spittoon or some vessel containing solution of carbolic acid of a strength of 5 per cent. or else a little water; (β) to do away with sweeping for the removal of dust and to replace it as far as possible by washing or rubbing over with a damp cloth; and (γ) to boil all milk before drinking it, whatever be its source. 2. With reference to family practice the Academy recommends to all medical men the continued application of these prophylactic measures from the time when tuberculosis is diagnosed, and also, if possible, to keep the disease quiescent by means of an early diagnosis and proper treatment. 3. With regard to the army the Academy suggests that early cases of tuberculosis in which the expectoration does not contain bacilli should be invalided temporarily, and permanently as soon as the sputa are found to contain Koch's bacilli. The Academy makes an appeal for the earnest coöperation of the military and hygienic authorities to see that the three measures above announced are carried out in every barrack. 4. In the case of schools, workshops, shops, &c., which have to be reached through the medium of those in charge, the Academy can only ask them to consider very earnestly the importance of these hygienic questions and the very simple and easy methods which are quite sufficient to carry out a real prophylaxis against the extension of tuberculosis. 5. The Academy approves of the conclusions which the commission appointed to examine into this question with regard to hospitals arrived at—that is to say (α) all tuberculous patients shall be isolated in separate wards until separate sanatoria can be provided for them; (β) antisepsis shall be carried out both in the tuberculous ward and the general ward, especially by careful cleansing of the floors and the substitution of washing for sweeping; (γ) the health of the general staff should be improved by giving higher wages, by drawing them from a better class, and by the grant of retiring pensions; and (δ) a staff of hospital sanitary officers ought to be formed. 6. The Academy approves of the restrictions laid down in the proposed Bill and of the new regulations with regard to meat taken from tuberculous animals. Seizure and total destruction of this kind of meat will only be employed in those cases, which are not very common, of general tuberculosis and "fevered" meat. The use of tuberculin is strongly recommended to breeders and the elimination from the herd by means of the butcher of those animals which only react slightly. 7. The Academy, wishing to mark the exceptional interest which it takes in seeing the prophylactic measures against tuberculosis carried out continuously, has appointed a new and permanent commission under the name of the Commission of Prophylaxis against Tuberculosis, which will have for its objects the encouragement of, and coöperation with, any effort which may be made against the dissemination of the tubercle bacillus.

May 9th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Antitoxic Serum of Typhoid Fever.

TYPHOID fever of late years has occupied the attention of Italian physicians in proportion as the water-supply has proved less and less adequate to the increasing population, and even outside the profession, in Parliament itself, the "interpellations" addressed to the Minister of the Interior by deputies whose constituencies are scourged by that "Nemesis of impure drinking water" multiply in frequency from session to session. Signor Arcoleo, under-secretary for that department, was, for instance, on April 25th interrogated by the member for Paternopoli (Signor Del Balzo) as to whether anything was being done in view of the approaching summer to prevent another "invasion of ileo-typhoid" due to "acque potabili" which were "deplorably polluted." I mention this to explain the exceptional interest taken by the Italian delegates at the Madrid Congress in the memoir on the "Antitoxic Serum of Typhoid" read by Dr. Chantemesse, Professor of Pathology, Experimental and Comparative, in the University of Paris. That serum (it is claimed by its discoverer) "has given the best results in patients suffering from typhoid, diminishing rapidly the grave effects of the nervous phenomena, lowering the temperature and accelerating powerfully the recuperative process." In last January Dr. Chantemesse by experiments on domestic animals, especially rabbits, succeeded in isolating the microbe of the fever from which he obtained a toxin finally shown at its best by "cultivating highly virulent typhoid bacilli in a solution of peptone." After five or six days from the beginning of the culture the toxin appears in abundance, but gradually declines, so that no time can be lost in preparing from it the antitoxic serum—a preparation effected on analogous lines to that of the anti-diphtheritic serum. Within from four to five hours (says Dr. Chantemesse) after the typhoid bacillus had been in deadly quantities injected into the blood of several rabbits an injection of one-fourth of a cubic centimetre of the antitoxic serum so far controlled the fever as to "put it in full defervescence" by next day. Animals differ in their response to the serum; but in none of them under Dr. Chantemesse's treatment has the result been absolutely negative. Meanwhile, his experiments are in process of being checked at the various clinical schools throughout the kingdom and in the course of the autumn we are promised a number of independent and detailed reports as to their outcome.

May 1st.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

British Troops in the Soudan.

THOUGH the telegraph wires flashed the news of the Atbara victory on April 8th in one hour to Cairo there has not yet been time for detailed written despatches to reach us from the hard-worked medical officers at the front. Daily messages are received at headquarters reporting the condition of the sick and wounded, announcing operations, and alas, sometimes mentioning deaths. The bulk of the wounded are still at Ginanetti, but it is hoped that the first convoy northwards will start from there in a few days. Two slightly wounded colonels have already reached Cairo with the newspaper correspondents and one lady has been invited to proceed to Wady Halfa to meet her wounded husband there. There are to-day 63 wounded at Ginanetti and 1 at Assouan. The sick returns kindly furnished me by the authorities are as follows:—Ginanetti 39, Darmali 90, Korti 20, Wady Halfa 10, and Assouan 3. This gives a total of 162 sick, or rather more than 4 per cent. of the total strength of 3800 men. This compares quite favourably with the sick-rate of 6 per cent. in Cairo, which includes, as usual, much venereal disease. The sick-rate of the British troops while "spoiling for the fight" was only 1 per cent. During the last week there have been 3 deaths at Ginanetti from dysentery, 3 deaths from enteric fever, and there are now 3 men seriously ill from the effects of that constant follower of the British army. It is satisfactory to know that enteric fever is now very rare in Alexandria, where Berkefeld filters have been provided for about two years; the disease is much less common in Cairo than it was before the introduction of efficient filters, and now for the first time an attempt has been made to supply an army in the Soudan with Berkefeld filters. The Royal Engineers have been busy this winter in preparing some metal cases for two groups each of Berkefeld candles. The case resembles in shape and weight a mountain gun and can easily be carried by one mule. The filters work by a hand pump and will turn muddy water into clean water in a few minutes. If both ends of the case work simultaneously speed is greater and less force is required, or if desired one end alone can be worked while the other is being cleaned. There is no doubt about the practical utility of this new method of utilising the Berkefeld filter as a mechanical filter, but of course every machine must be tested independently by a bacteriologist before it can be thoroughly recommended. Then will come the great practical difficulty of all these filters—how and when to render them sterile. These new filters cannot have arrived in time for the Atbara battle, for they were late in starting and were somewhat delayed in transit.

Plague at Jeddah.

The Superior Council of Health of Constantinople early this month sent a commission of three members to Jeddah to decide whether there was or was not any plague there. The two younger members, Dr. Fuad Bey, a Turk, and Dr. Nicolaides, a Greek, were chiefly occupied in surveying the disembarkation of pilgrims outside Jeddah. The Greek head of the mission, Dr. Cozzonis, very kindly allowed Dr. Bittar of the Egyptian Sanitary Department to pay a short visit to Jeddah with him. Every facility was shown him by Dr. Zantopolidis, the Greek Director of the Sanitary Office at Jeddah, who is a young, active and very intelligent official. The town of Jeddah, walled in with its five gates, can now boast of clean streets and large airy houses with windows of open lattice work instead of glass. But the 20,000 inhabitants are far from content, for they live by the pilgrimage, and this year the Turkish Government has decreed that the pilgrims shall not enter the city. A military cordon surrounds the pilgrim camp, which is about ten miles from Jeddah, but as there are no tents—the pilgrims being exposed to the fierce sun while waiting for camels or steamers—and as all food and water has to be brought to the camp from Jeddah, it is evident that there are already several causes provided for future disturbance. Unlike the previous experience of Egyptian Commissioners the Jeddah natives showed none of the fright evinced by both Hindoos and Mussulmans in Bombay. Another difference was that whereas in Bombay it was almost impossible to obtain rats or mice there were plenty forthcoming in Jeddah, and some of those found dying in the streets contained plague bacilli. There is a plague hospital in Jeddah, but it contained only one patient, an Indian without friends or money. Dr. Bittar described him as a typical septicæmic case with great enlargement of the right inguinal glands surrounded by œdematous tissue. He had great prostration, a typical tongue, a temperature of 106·7° F., a pulse of 140, and was evidently dying from plague. No necropsy was possible, but the microscope and cultures revealed plague bacilli in the inguinal glands. Two other men were convalescing from plague and buboes, but all these three were residents of Jeddah. There seems to be no evidence yet that plague has been imported this year from India or elsewhere. On the contrary, everything points to its being a recrudescence on the spot of last year's infection by stored-up rags. From March 21st to April 16th of this year 36 deaths from plague have been officially returned. If to this number we add unknown cases among women whose bodies cannot be examined and deaths returned as pneumonia we can guess that there have perhaps been 100 cases.

Cairo, April 27th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

The After-care of the Insane.

A COMMITTEE of the Neurological Association recently sent a circular-letter to alienists and superintendents of hospitals for the insane for the purpose of inquiring as to the necessity for after-care of the insane. The result of

this inquiry is as follows. Fifty replies were received. Of the entire number of correspondents only 6 are either doubtful of the desirability and practicability of after-care associations for the dependent insane or are decidedly opposed to such a step. The reasons given by them are that the number of cases which are likely to be benefited by such aid is too small to be advisable, that while such a project might be desirable it is inexpedient, that while excellent in theory it would be impossible in practice, &c. On the other hand, the overwhelming majority of 44 in 50 (or 47 in 53 if the committee be included) express, and in not a few instances in the strongest terms, their decided belief in the great advantages likely to result from properly organised and conducted aid societies of this kind for discharged insane patients who are recovered, convalescent, or improved. Regarding the number likely to be benefited in this way the experience of superintendents of hospitals for the insane, as indicated in these replies, is not of much assistance, as the few who replied found it difficult to properly estimate the number of deserving patients. As to the auspices under which such associations should be conducted it is the general opinion of both the alienists and neurologists that they should by all means be begun as private organisations and so continued until their utility be demonstrated. If successful, State aid could then probably be obtained. In reply to the question regarding the advisability of establishing State homes for convalescent patients as a part of the general policy of States toward their insane there is more diversity of opinion, but the same degree of interest and careful consideration of the subject. Scarcely a member of this association has written in opposition, and of 29 hospital superintendents and other alienists 19 were warmly in favour of such an accessory provision, 5 were doubtful of its expediency, and 5 were decidedly opposed to the project. Of 4 members of lunacy and charity boards 1 is in doubt as to its utility and the rest think it would be an unnecessary and useless experiment. As a result of their inquiries the committee reports the following conclusion: It is the general and well-nigh unanimous sentiment of those who are the most conversant with the needs of the insane in this country that measures should speedily be inaugurated for the temporary relief of discharged, recovered, convalescent, and improved insane patients of the dependent class by organised outside assistance.

The New York Skin and Cancer Hospital.

At the opening of the new building Dr. Bulkley, the originator of the hospital and its present secretary, delivered an address devoted to the history of the undertaking. The first patient was admitted to the old building in Thirty-fourth-street on Feb. 26th, 1883. During these fifteen years the hospital has received about $375,000, of which $75,000 came from the board of patients and sale of drugs in the dispensary. The land and building are now practically free from debt. Since the opening of the hospital 25,031 cases have been treated, 3010 of which were in the cancer department. The greater number of patients were out-patients and the total number of visits was 118,154. The number of prescriptions filled by hospital druggists was 132,263. In the wards of the hospital there had been 2872 patients and the total number of hospital days was 165,077, of which 117,658 were free.

Railroad Accidents.

It appears from the Inter-State Commerce Commission's statistics of the casualties to persons in railroad accidents in the United States for the year ending June 30th, 1896, that the total of killed was 6448; of injured, 38,687. For nine years the average deaths were 6444 a year; the average injuries were 33 000. Of actual passengers the killed in nine years averaged 283 a year and the injured averaged 2600. The passengers killed were only one-twenty-third of all the deaths and passengers contributed only about one-thirteenth of the injured. Of all the casualties to passengers less than one-half are in train accidents. The other deaths and injuries to passengers occur at highway crossings (going to and from stations), at stations, and from other causes. The last item includes those killed and injured while getting on and off moving trains, falling between cars, sticking their arms and heads out of the windows, and in other exhibitions of carelessness. In one State the passengers killed and injured from causes beyond their own control have, for at least ten years, been less than half the total. Of the injuries much the greater part are very slight, a large percentage being so slight that even the lawyers can find in them no basis for damage suits. It may be safely said, therefore, that the railroads are responsible each year for the death of only 142 passengers and for the injury of only 1300. The passengers killed in a year are 283. But the passenger travel in 1896 was 13,049,000,000 miles, or it equalled one passenger travelling that distance. It follows that a man can travel by rail 46,000,000 miles before he is killed. In other words, if he travels night and day at 35 miles an hour he must travel 150 years before he is killed. But if the average deaths are 6444 a year and the passengers killed are but 283, if the average injuries are 33,000 and the passengers injured are but 2600, how shall we account for the other 6161 killed and 30,400 wounded? To save a confusion of figures I shall deal only with the killed henceforward; the lesson will be precisely the same as if it included the wounded also. The employés killed per year in the last nine years were 2210 and the other persons were 3951. Of the employés killed last year about 12 per cent. were killed while coupling and uncoupling trains, 25 per cent. by falling from trains and engines, 19 per cent. in train accidents, nearly 10 per cent. from overhead obstructions at highway crossings and at stations, and, finally, 34 per cent. from other causes. A very large percentage of the deaths is classified so vaguely as to vitiate analyses or deductions, but the small percentage due to train accidents is striking and extremely interesting as suggesting the safety with which trains are run. The total number of employés in the year considered was 826 620. These men did an immense amount of travelling, but those killed in train accidents were only 348, and, of course, most of these were in freight train accidents. There still remain 3951 deaths per year to account for, or 61 per cent. of the whole. These are neither passengers nor employés. Of the 3951 persons other than passengers and employés killed every year (being 61 per cent. of all the deaths) 3566, or 55 per cent. of the total or 90 per cent. of the others, are trespassers. Nearly 10 persons are killed every day in the year because they are where they have no right to be. Of these trespassers 141 are killed at highway crossings, 323 at stations, and 2957 from other causes. The trespassers are run down in small numbers at road crossings, in greater numbers at stations and in yards, and in still greater numbers out in the open road, and this shocking waste of life is going on, not through the fault of railroad officers, but because of an ignorant and apathetic public opinion.

April 19th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Dengue Fever in Queensland.

TWO interesting papers on Dengue Fever have been published simultaneously—one, by Dr. Hirschfeld, in the *Inter-colonial Medical Journal* for March, deals with the epidemic in Southern Queensland; the other, by Dr. F. C. Hare, in the *Australasian Medical Gazette* for the same month, describes the disease as observed in Northern Queensland. Both writers agree as to the intense infectivity of the disease. According to Dr. Hirschfeld the period of incubation is about two weeks. Dr. Hare says "there is plenty of evidence to show that the incubation period does not extend beyond one week." Dr. Hirschfeld states that "infection can take place despite unfavourable conditions of climate and soil and locality," but that "where climatic and local conditions are unfavourable a further spread of the disease is rendered unlikely." It is quite likely to invade the southern colonies. In the opinion of Dr. Hare the disease is essentially tropical and is greatly influenced by temperature. The district of Herberton was exempt from the disease owing probably to its altitude and comparatively cold climate. As to immunity Dr. Hare maintains that it does not extend beyond two years after an attack, large numbers being attacked who had gone through the disease two years previously; a few cases had an attack every year. Dr. Hirschfeld admits that it is not possible to speak with final definiteness as to immunity, but so far it has been found that a patient who has once suffered from the fever will not be attacked by it a second time. When patients make statements to the contrary a close examination will reveal that the supposed former attack was not accompanied by a rash, without which the diagnosis

of dengue is not complete, and was probably influenza or a gastric attack. Both writers agree fairly as regards symptomatology, sudden onset, pains, and rash. Dr. Hare says that the pulse presents no striking peculiarities, but Dr. Hirschfeld maintains that the pulse-rate does not run parallel to the temperature and "it is characteristic of dengue that a relative bradycardia may be observed during the continuance of the fever" and an absolute bradycardia frequently appears during convalescence. Both agree that the main element in treatment is rest. Dr. Hirschfeld thinks that the exhibition of quinine from the first diminishes the tendency to relapse. For hyperpyrexia he advocates lactophenin. As bearing out Dr. Hirschfeld's views as to the probability of dengue spreading to the southern colonies Dr. Casement of Kempsey, New South Wales, has made a report to the Board of Health concerning an outbreak of dengue in that town, where a great many cases have occurred, and he supposes that the disease was introduced from Queensland.

Appointment of Health Officers under the New Health Act, New South Wales.

The Government of New South Wales, acting on the recommendation of the Board of Health, has appointed two medical officers of health—one for Sydney and its neighbourhood, constituting the metropolitan combined districts; the other for Newcastle and the towns on the Hunter River, to be known as the Hunter River combined districts. The appointments are made under the new Public Health Act and though the salaries are paid by the Government the new officers are really to be attached to the municipalities, to whom they will send in regular reports. The duties attached to the positions are practically to bring the provisions of the new Act into operation in the districts named, which include about 45 per cent. of the population of the colony, and gradually to familiarise the public with the provisions of the Act. Dr. William George Armstrong has been appointed to the metropolitan district at a salary of £750 a year and Dr. Robert Dick to the Hunter River district at a salary of £700 a year. Both gentlemen are graduates of Sydney University and subsequently obtained the diploma of public health at Cambridge.

Death of a Medical Man through the Mistake of a Druggist.

On March 7th Mr. Samuel Prince Williams, L.R.C.P. and S. Edin., of Nicholson-street, Fitzroy (a suburb of Melbourne) called at a druggist's shop and asked for a solution of sulphate of morphine for hypodermic injection. The solution was made up by the son of the proprietor of the shop. Mr. Williams drove on to see a patient, whom he injected with the solution. It appears that he was accustomed to use morphia himself and after injecting the patient he gave himself an injection also. He then drove home with his wife. Before they had gone very far he was seized with violent convulsions and pain. Mr. Williams recognised that some mistake had occurred and drove to a neighbouring practitioner's house, arriving in a collapsed condition. He was found to be evidently suffering from the effects of atropine. He rallied somewhat, but died the next morning. His patient was affected with similar symptoms, but not so severely, and fortunately recovered. The mistake arose through the druggist keeping morphine sulphate and atropine sulphate in similar bottles with written labels and the dispenser had taken up the wrong bottle, Mr. Williams being in a hurry and telling him to be quick. The dispenser was committed for trial for manslaughter by the coroner.

Death of a Child from Swallowing a Bone: Alleged Neglect by Hospital Authorities.

On March 23rd the deputy coroner for Sydney held an inquiry concerning the death of a child at the Children's Hospital on March 19th. It appeared that while the father was feeding him with a spoon with some Irish stew the child began to choke and cough. He took the child to a druggist, who examined him, said that he had a bone stuck in the throat and advised the removal of the child to the Sydney Hospital. There after some little delay, Dr. Bowker, resident medical officer, examined him, but could feel no bone, and Dr. Harris, senior resident, failed also to detect the bone. The child had no difficulty of breathing. The father was told to take the child back. Instead of doing so he took him to the Prince Alfred Hospital, where he was examined by the resident on duty, by the medical superintendent, and Dr. McCormack, honorary surgeon. All failed to discover the bone. Dr. McCormack ordered the child to be kept in the hospital and an x ray photograph to be taken. The parents took the child out and had an x ray photograph taken themselves, but it did not reveal the position of the bone. The child got much worse and they took him to the Children's Hospital, where an operation was performed. While the trachea was being opened the child stopped breathing and in spite of artificial respiration and treatment died. Dr. Chisholm, honorary surgeon, said that the cause of death was septicæmia following an abscess round a piece of mutton bone which had perforated the gullet a good way down. The finding of the coroner was that the treatment adopted was proper and that the deceased died from a bone being accidentally embedded in the throat, accelerated by a necessary surgical operation under chloroform. The coroner said the case should have been reported by the authorities at the Children's Hospital and no certificate should have been given. He thought that if the parents had taken the child back to the Sydney Hospital at once his life might possibly have been saved, but that was problematical.

Thirlmere Home for Consumption.

Some seventeen years ago the munificence and philanthropy of a private citizen, Mr. Goodlet, established the Thirlmere Home for advanced cases of phthisis in destitute circumstances. Mr. Goodlet not only established, but for many years maintained, this most excellent institution. When the financial crisis came he found himself unable to continue his work and he handed the home over to the public with an appeal to the charitable to maintain it. For a time the public responded, but the subscriptions have gradually fallen off until the institution can no longer be maintained. At the Jubilee time the public subscribed £12,000 for the Queen Victoria Consumption Hospital and apparently thought it had then done enough for the phthisical patient. Now that attention has been drawn to the matter by the press the public will assuredly keep the Thirlmere Institution going.

St. Vincent's Hospital, Melbourne.

A public meeting was recently held in Melbourne, his Excellency the Acting Governor in the chair, to raise funds for the extension of St. Vincent's Hospital. The project was approved by the meeting and £2000 were subscribed for the purpose.

April 1st.

Obituary.

JAMES RHODES, M.R.C.S.ENG., L.S.A.

ON April 21st one of the best known inhabitants of Glossop passed away in the person of Mr. James Rhodes. He was born at Tintwistle, near Glossop, in 1830 and was apprenticed to the late Dr. Turton at Glossop in 1849. After attending lectures at the Pine-street School of Medicine in Manchester he took the Licence of the Society of Apothecaries of London in 1853 and the Membership of the Royal College of Surgeons of England in 1854, when he began to practise at Glossop. He was thus associated with Glossop all his life. He was the first medical officer of health of the Glossop borough and district, honorary surgeon to Wood's Hospital, Glossop, and held various other local appointments. Mr. Rhodes had an extensive private practice and worked hard at his profession, but found time to devote to scientific and philosophic subjects. He was a member of the Manchester Literary and Philosophical Society and a justice of the peace for the borough. The respect in which he was held was evidenced by the large number of borough officials, representatives of societies, and personal friends who followed his remains to the grave.

BORIC ACID IN BUTTER.—At Pontypool police-court on April 23rd a grocer of Garndiffaith was fined £5, including costs, for selling butter adulterated with boric acid. The county analyst said that the sample contained 91 grains of boric acid to the pound; he had examined over 400 samples of articles for boric acid, but the highest percentage he had observed previously to this case was 63 grains to the pound.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examinations and having conformed to the by-laws and regulations have been admitted Members of the College :—

Allen, Lancelot Lloyd.
Anderton, William Bury.
Ashby, Edgar.
Atal, Pandit Piarylal.
Barnes, Frank.
Barnes, John Alfred.
Bascombe, Edwin Cecil Dare.
Battersby, James.
Belfrage, Sydney Henning.
Bell, Kenneth de Risley.
Bernard Onraët, Hugh.
Billups, Christopher Robert.
Bingham, Sydney Oliphant.
Blaker, Percy Stanley.
Bond, James Henry Robinson.
Briscoe, John Charlton.
Clapham, Stanley Cornell.
Clay, John.
Corner, Edred Moss.
Daly, James Robert.
Daniel, Alfred Wilson.
Daniel, Peter Louis.
Deller, Henry Goodridge.
Domela Nieuwenhuis, Theodoor.
Evans, David.
Evans, Edward.
Fell, Matthew Henry Gregson.
Furnivall, Charles Hilton.
Gill, Francis Philip.
Gladstone, Arthur Edward.
Godson, Alfred Henry.
Grapel, Francis Gaspar.
Gray, Herbert Edward.
Hall, Edmund Stokes.
Hancock, Edward Dawbney.
Harris, Herbert George.
Harrisson, Alfred Everson.
Hartigan, Thomas Joseph Patrick.
Hay, William Leslie.
Hayward, Milward Cecil.
Herbert, Thomas.
Hodgkins, Albert Edward.
Hosken, James Gerald Fayrer.
Howells, John.
Hunter, Irwin Walter William.
Inkson, Edgar Thomas.
Lacey, William Walter.
Lander, Charles Llewellyn.
Langley, John Edward.
Lankester, Ralph Albert Rogers.
Le Fleming, Ernest Kaye.
Levison, Hugo Adolf.
Leyden, Charles Dominic.
Lidderdale, Francis John.
Long, James Ernest.
MacLeod, Roderick Alexander.
May, Walter John.
Matthews, Ernest Albert Churchward.
Mercer, Alexander.
Millen, Seymour Alfred.
O'Neill, Gordon.
Ormond, James Service.
Osborne, Richard Sidney.
Pearce, George Heneage.
Penfold, Thomas Cunningham.
Pershouse, Frank.
Pike, Cyprian Royston.
Porteous, Herbert Llewelyn.
Primrose, William.
Provis, Francis Lionel.
Raines, Robert.
Rees, Harry William Melville.
Richards, Ramsey Martin.
Richardson-Jones, Arthur Trevor.
Riviere, Clive.
Robinson, John Elliott.
Roderick, Henry Buckley.
Ross, Hugh Campbell.
Sargent, Percy William George.
Schölberg, Harold Alfred.
Scott, Aleck Lauriston.
Scott, Ernest Harold.
Silas, Walter Biscombe.
Smallwood, Matthew Edmund.
Smith, Charles Charnock.
Smith, Malcolm Arthur.
Smithson, Arthur Ernest.
Stratton, Percy Houghton.
Talbot, Francis Theodore.
Taylor, Henry James.
Taylor, Isaac.
Turner, Henry Watson.
Walker, George Charles.
Watson, Charles Gordon.
White, Finch.
Winkfield, Charles Frank.
Winkfield, William Bertram.
Wood, Leonard.
Woodbridge, Elliot Wilson.

UNIVERSITY OF CAMBRIDGE.—The following candidates have satisfied the examiners in both parts of the Examination in State Medicine :—

H. W. L. Barlow, O. Beven, H. L. Billett, J. J. Boyd, J. Brownlee, C. E. Corlette, W. E. Dixon, O. Eaton, W. M. Eaton, T. A. Ellwood, W. Hanna, A. Hudson, H. B. R. James, W. H. Jewell, A. E. Larking, W. J. Lubeck, R. P. Mackenzie (Joh.), E. J. Moore, B. N. Mullan, R. W. C. Pierce, A. E. Roberts, E. Robertson, A. Sheppard, A. C. Turner, and S. Worthington.

UNIVERSITY OF EDINBURGH.—The following is the official list of candidates for degrees in Medicine and Surgery who have completed the first, second, and third professional examinations respectively this spring :—

First Professional Examination.—May Agnew, W. L. L. Alston, James Arthur, A. W. Atkinson, A. K. Baxter, A. W. Beveridge, Henry Beveridge, William Black (with distinction), M. N. Bose, C. H. Bösenberg, J. R. Bosman, J. C. Boyd, F. H. Bridgman, James Brocket, R. D. Brown, D. G. Carmichael, Adam Clark, C. E. Clay, A. P. Coskey, D. M. Crooks, W. J. Crow, T. M. Cuthbert, N. S. Cuthbertson, F. I. Dawson, W. H. Elder, S. A. Ellerbek (with distinction), A. P. R. Fennell, N. C. Fischer, Stephen Garvin, Sidney Gilford, J. M. Glasse, R. A. Glegg, Wilbert Goodchild, R. M. Grant, H. W. Gush, F. M. Harper, Arthur Hutley, R. C. Irvine, Isaac Ivey, Bertha Jex-Blake, Edward Johnston, A. R. Khan, James Kirkwood, P. V. Langmore, Abraham Leach, A. B. Leakey, J. G. M'Caughey, R. J. M'Clelland, F. D. S. Mackenzie, M. E. Mackenzie, Daniel Mackinnon, T. H. Mackinnon, William M'Lachlan, R. P. M'Neil, D. M. Macrae, J. B. Mason, J. K. Matheson, Paul Mathews, Robert Morison, D. N. W. Murray, Robert Murray, E. G. O. Nixon, A. C. Owen, J. L. Palmer, Sophie Palmer, John Politachi, E. T. Potts, E. C. Prichard, H. St. J. Randell, F. L. Rigby, W. A. Robinson (B.A., B.Sc.), T. W. E. Ross, A. J. Rowan, C. J. Shaw, Kate Southon, W. C. Speirs, D. A. Stewart (M.A.), W. H. Swaffield, J. M. Taylor, G. C. Trotter, B. P. Watson (with distinction), John Wier, Ada Wilkinson, and David Young.

Second Professional Examination.—T. H. W. Alexander, J. D. Anderson, H. E. Arbuckle, S. A. Ballantyne, J. W. Barrack, M. C. Beatty, A. L. Bennett, J. M. Benson, C. A. Bentley, Hubert Bishop, A. B. Black, J. A. Black, J. S. Bostock, J. B. Boyd, O. C. Bradley, L. P. Brassey, J. M. L. Brown (M.A.), Adam Brydon, G. F. Buist, P. C. Campariole, Malcolm Campbell (M.A.), G. S. Carmichael (with distinction), Kirkland Chapel, C. S. Clark, H. E. Coghlan, V. A. P. Coghill, W. P. Cormack, John Craig, T. A. Davies, S. L. Dawkins, W. I. Dunn, William Eadie, J. S. Enslin, D. J. Fergusson, D. C. L. Fitzwilliams, Andrew Fleming, J. G. Forsyth, Alexander Frew, W. E. Frost (with distinction), J. S. Geikie, William Girdwood, Thomas Graham, St. L. H. Gribben, G. W. Guthrie, P. S. Haldane, G. H. Hannah, N. E. J. Harding, Herbert Harris, W. E. Herbert, Davis Heron, H. O. Hobson, K. W. Hogg, H. J. Hoile, J. T. Hurst, E. B. Jamieson, Langworthy Laurie, R. G. Leach, E. A. Loch, S. L. M'Elderry, A. C. N. M'Hattie, A. J. Mackenzie, D. S. Macknight, H. J. M'Lean, J. M. A. M'Milan (M.A.), Angus M'Nab, G. W. P. Maitland, A. A. Martin, A. G. Martin, Henry Mason, F. C. Matthew (M.A.), M. M. Meikle, E. T. Melhuish, E. G. D. Menzies, S. H. Morris, J. A. S. Mouat, James Munro, H. C. Nixon, Norman Patterson, John Pender (with distinction), L. C. P. Ritchie, David Robertson, J. K. A. Robertson, G. A. P. Ross, R. A. Ross (with distinction), W. C. Ross, R. A. Savage, T. B. H. Scott, W. S. Scott, E. T. Selkirk, J. F. Selkirk, H. D. Shepherd, P. W. Shepherd, T. S. Shepherd, F. D. Simpson, G. W. Smith, J. A. Smith C. B. Snow, C. E. Southon, G. B. A. Speirs, E. R. Sproull, C. S. Steavenson, T. G. Stewart, M. A. Swan, F. T. Thompson, J. H. Thornley, Alexander Trotter, Alexander Tweedie, C. S. Vartan, A. G. Watson, N. S. Wells, Angus Whyte, G. D. Whyte, F. M. Wigg, W. G. Williams, A. W. Wilson, M. R. Wilson, T. J. G. Wilson, W. H. Winstanley, A. M. Wood (with distinction), C. G. Wotherspoon (M.A.), Frank Young (M.A.) (with distinction), and J. C. Zuidmeer.

Third Professional Examination (New Regulations).—Ivey Aird, John Anderson, Harvey Baird, W. J. Baird, C. A. J. A. Balck, W. J. Barclay (with distinction), E. F. Bashford, J. G. Bell, F. P. Bester, P. J. Bodington, G. A. Brogden, W. J. D. Bromley, A. P. L. Brown, E. A. Brown, G. H. J. Brown, T. C. Caldwell, D. A. Callender, H. G. Carlisle, J. C. Carr, L. M. Chesney, B. J. Courtney, William Darling, H. B. Dodds, C. H. Durrant, David Ewart, William Ewart, W. R. Eyton-Williams, R. R. Fasson, Hugh Faulkner, David Fenton, David Ferrier, E. G. Ford, A. S. Frank, John Fullarton, J. J. Galbraith, H. A. H. Gilmer, J. H. Gordon, T. B. Gornall, F. J. Gray, A. H. Griffith, P. W. Hampton, F. J. Hathaway, G. G. Hay, A. C. Heath, I. K. M. Hermon, H. T. Holland, A. M. Holmes, James Husband, J. G. Jack (with distinction), W. T. James, R. F. Jardin, J. W. Kerr, D. B. King (M.A.), G. D. Laing, L. S. Lessing, Thomas Livingstone, E. A. Loch, J. L. Louis, James Luckhoff, B. G. Macdonald, J. M. Macdonald (M.A.), P. H. Macdonald, P. N. M. Macdonald, W. R. Macdonald, Harold Macfarlane, W. M. Mackay, Maxwell MacKelvie, H. M. Mackenzie, T. C. Mackenzie, George Mackie, R. C. M'Lachlan, P. A. Maclagan, L. Maclagan-Wedderburn, G. C. M'Leavy, R. A. Macneill, William Macniven, L. W. Macpherson, A. G. Martin, Jas. Masson (M.A., B.Sc.), D. B. Merry, F. N. Menzies, G. H. Menzies (M.A.), James Miller (B.Sc.) (with distinction), J. G. Mitchell, R. M. Mitchell, J. R. Munro, W. A. Murray, A. W. Nankervis, T. P. Oates, James Orr, T. S. A. Orr, William Park, A. S. M. Parker, A. S. M. Peebles, E. J. Peill, Arthur Preston (with distinction), R. M. Pringle, S. C. Pritchard, William Purves, H. G. P. Raeburn, F. G. Ralston, William Reid (M.A.), A. C. Renwick, Robert Ritchie, T. R. Robertson, Thomas Rogerson, R. M. Rowe, Sutherland Simpson (B.Sc.), C. E. Smith, A. K. Smith-Shand, V. E. Sorapure, Stephen Southall, W. J. Stuart (M.A.), W. W. Thom, G. N. W. Thomas, J. A. Thompson, R. G. Thomson, R. B. Turnbull, N. D. Walker, C. H. Watson, C. H. J. Watson (with distinction), Angus Whyte, A. S. Whytock, H. D. Wilson, A. H. Wood, and E. M. Young.

CONJOINT EXAMINATIONS IN IRELAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following candidate has passed the examination for the diploma in State Medicine and Public Health :—

H. Benson Goulding, F.R.C.S. Irel.

A CENTENARIAN.—At the meeting of the Truro Rural District held on May 4th the medical officer of health (Dr. Bonar) reported that a woman named Mary Old of Kea had died at the age of 104 years.

MORGAN DOCKRELL *v.* DOUGALL.—On May 5th this case came on before Mr. Justice Kekewich in the Chancery Division of the High Court. Counsel for the plaintiff, a medical man, in opening said that this was an action brought to obtain a perpetual injunction against the defendant, who traded as the Sallyco Water Co., for using the plaintiff's name on a circular which stated that he was in the habit of ordering this water for "habitual use." To this the plaintiff objected, firstly, on account of the damage which would accrue and probably had occurred to his practice because of medical men believing he was guilty of unprofessional conduct in advertising by means of the "puff direct." Further, he objected because this water contained added drugs: colchicin, one-sixtieth of a grain, salicylic acid three grains to each half pint of aerated water. Colchicin being a scheduled poisonous alkaloid, this water might prove highly dangerous if used as an ordinary drinking-water like Apollinaris and not used as the plaintiff believed it ought to be—only under careful medical supervision. It was alleged that the defendant had given and broken undertakings not to publish any more circulars. At this juncture the learned judge intervened and said that as it was a case involving damage to reputation it ought to be submitted to a jury, and the case was then, with the permission of the Lord Chief Justice, transferred to the Queen's Bench Division.

THE LONDON OPHTHALMIC HOSPITAL. — The festival dinner of the London Ophthalmic Hospital was held at the Grand Hotel on May 6th, when H.R.H. the Duke of Cambridge presided. In proposing the toast of the evening the chairman made a strong appeal for help and asked for a liberal response to his appeal. Sir John Lubbock, M.P., in responding, spoke of the value of the hospital in promoting the knowledge of ophthalmic science. Subscriptions to the amount of £1059 were announced by the secretary in the course of the evening.

FRENCH HOSPITAL AND DISPENSARY. — The thirteenth annual dinner in aid of the funds of this institution was held on May 7th at the Hotel Cecil. In the unavoidable absence of Baron de Courcel, the French Ambassador, the chair was taken by M. Leon Geoffray, the French Chargé d'Affaires, who was supported by the Lord Mayor and Sheriffs of London and many representatives of the *corps diplomatique et consulaire*. After the usual loyal toasts, including that of the President of the Republic, the chairman proposed the toast of the evening coupling with it the names of the Lord Mayor and Baron Whettnall. The Lord Mayor recalled the pleasure which his predecessors had always felt in assisting so deserving a charity and he took advantage of the opportunity to advise the management to take care that the funds were not expended on undeserving subjects, hospital abuse being a matter at present very much before the public. During the evening subscriptions amounting to upwards of £3000 were promised.

UNIVERSITY OF OXFORD.—That Oxford is well disposed towards its medical school is proved by the fact that in Convocation last Wednesday a decree was passed empowering the University to spend a sum of £7500 on the erection of a new laboratory and lecture theatre for the joint use of the Professors of Botany and Comparative Anatomy. As the Warden of All Souls stated when he introduced the decree in Congregation this step was necessary to provide accommodation for the increasing number of medical students. That the grant was passed without a dissentient voice speaks volumes, especially when it is remembered that the University chest is in a far from satisfactory condition. It is to be hoped that future grants will be as easily obtained, for the rooms at the disposal of the University lecturers on pathology and pharmacology are already insufficient to meet the requirements of these subjects or the number of students who desire instruction.—A public lecture on Pharmacology, its Aims and Methods, was delivered at Oxford by the newly appointed lecturer on materia medica and pharmacology, Dr. J. Smith-Jerome. In the course of an interesting address the lecturer remarked that the greater part of materia medica should be relegated to its natural habitat, the druggist's shop.

THE DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—An ordinary meeting of this society was held at 20, Hanover-square on April 26th, Dr. R. L. Bowles, in the unavoidable absence of Dr. J. F. Payne, being in the chair.—Dr. T. D. Savill brought a case for diagnosis—a Vesiculo-neurotic Eruption of probably Angio-neurotic Origin in a female aged fifty-two years. The eruption was practically localised on the lower third of left forearm back and front (mainly on the extensor surface) and on the back of the hand.—Mr. Hutchinson had seen the case and had been unable to give a name to it. After six weeks' treatment in a nursing home the patient had very much improved. A series of photographs of the case was shown.—Dr. Bowles, Mr. Pernet, and Dr. Travers-Smith joined in the discussion.—Mr. Pernet inquired whether the question of malingering had been gone into.—Dr. Savill also showed a ase of Telangiectasis of the Face of recent origin in a man about thirty years of age.—Mr. W. T. Freeman showed a case of obstinate Lupus Erythematosus of the Face in a man aged twenty-eight years.—Dr. Savill suggested that it should be treated by the application of pure carbolic acid.—Mr. Pernet suggested soothing local applications.—Dr. Thompson showed, for Dr. Abraham, a man, about fifty years of age, whose body and limbs were almost smothered with eruption. Dr. Abraham called it lichen ruber acuminatus, as contrasted with pityriasis rubra pilaris. There was intense itching; it had existed for some weeks.—Dr. Bowles suggested oleum duline (a petroleum oil) locally and a skim milk diet.—Mr. Pernet said the eruption looked like an irritated acute lichen planus and suggested soothing local applications and rest in bed.

THE first annual dinner of the Chelsea Clinical Society was held at the Criterion Restaurant, Piccadilly, on Tuesday last.

ADVERTISING DENTISTS.—At the Cardiff County-court on May 5th, before Judge Owen, a female plaintiff sued a firm of dentists practising in Cardiff for £50 for personal damages. Counsel for the plaintiff showed that she had been attracted by advertisements stating that the defendants would supply a set of false teeth for 1 guinea, and she accordingly ordered a set at that price. After having twenty-two teeth cut or broken off she was informed that the guinea set would not do, but that she must have a 5-guinea set, and to this she agreed. The teeth, however, soon gave her trouble, and she went from time to time to the defendants, but they only made slight alterations. Eventually she was compelled to consult a medical practitioner, who treated her and advised her to see another dentist. This she did, and that gentleman found it necessary to extract twenty-two stumps, his fee amounting to £25 and the medical attendant's to £10. Counsel added that the plaintiff had been obliged to abandon a part of her claim in order to bring it within the jurisdiction of the court. The judge decided in favour of the plaintiff for £50 with costs.

DIPHTHERIA IN LONDON. — The deaths registered from diphtheria in London in the week ended April 30th were 39 in number and 4 in excess of the corrected decennial average for the corresponding week of the period 1888-97. The deaths in the three preceding weeks had been 29, 34, and 31 respectively and thus gave place to a distinct rise. Of the 39 deaths all were of persons aged under twenty years, 8 being of infants and other 25 of children under five years of age. The sanitary areas of Chelsea, St. Pancras, Islington, and Bethnal Green had each 4 deaths, and Hackney, Poplar, and Lambeth had each 3 deaths. There were 110 admissions to hospital in the week and 930 persons remained under isolation because of the disease at the close of the week—a fall from 1061 two months earlier. In the Outer Ring 14 deaths were registered from diphtheria, of which 6 occurred in Bexley sub-district and 4 in West Ham registration district. Last week the deaths from the disease registered in London declined to 27 and were 6 below the corrected decennial average for the corresponding week of the years 1888-97. All were of persons under twenty years of age, 23 being of children aged from one to five years. As many as 133 cases were admitted to hospital, 942 persons remaining under treatment last Saturday. In the Outer Ring 13 deaths were registered, of which 6 occurred in the West Ham registration district.

FREEMASONRY.—*Æsculapius Lodge, No. 2410:* The last meeting of the session was held at the Café Royal, Regent-street, on the last Wednesday in April. Thomas Dutton, M.D.Durh., I.P.M. and secretary, presided in the unavoidable absence of the Master, E. H. Ezard, M.D., D.Sc. Edin. J. W. H. Eyre, M.D., M.S. Durh., was admitted to the second degree, and W. C. C. Pakes, L.R.C.P.Lond., M.R.C.S.Eng., and O. Eaton, L.R.C.P.Lond., M.R.C.S. Eng., were initiated into Freemasonry. Surgeon-Lieutenant-Colonel H. W. Kiallmark, G.J.D., was elected Master for the ensuing year and G. Danford Thomas, M.D.Brux., coroner for Central London, treasurer. After the business of the Lodge was concluded the members dined together. Allusion was made to the honour bestowed on Bro. Kiallmark, who had just had the office of Grand Junior Deacon conferred upon him by the M.W.G.M., H.R.H. the Prince of Wales.—*Rihere Lodge, No. 2548:* A meeting of this Lodge was held at Frascati's Restaurant on Tuesday, May 10th, Bro. W. J. Walsham, W.M., being in the chair. Messrs. Briggs, Arthur Heath, and Stewart Mackintosh, junior, were initiated into Freemasonry. Bro. Launcelot Jowers was elected a joining member and Bros. Christopherson, Carnall, and Hoyland were admitted to the second degree by W. Bro. West. A sum of thirty guineas was voted from the Lodge funds to the centenary festival of the Royal Masonic Institute for Boys. W. Bro. T. G. A. Burns, was elected Worshipful Master for the ensuing year, and W. Bro. Godson, P.G.D., was elected treasurer.—*Universities Lodge, No. 2352:* The annual festival of this Lodge was held in the Masonic Hall, Durham, on April 28th, when Bro. George Hare Philipson, M.D., Professor of Medicine in the University of Durham, was installed as Worshipful Master of the Lodge.

UNIVERSITY OF WALES.—At the annual extra-collegiate meeting of the court of the University of Wales Dr. Isambard Owen, the retiring senior deputy chancellor, was re-elected and Lord Tredegar was elected junior deputy chancellor.

MEDICAL MAGISTRATES.—The Lord Chancellor, on the recommendation of the Lord-Lieutenant, has appointed Dr. George P. Bate of Hackney a Justice of the Peace for the County of London.—Mr. James Grant, M.B., C.M. Aberd., of Rhynie, and Mr. James Noble, M.D. Aberd., of Braemar, have been appointed Justices of the Peace for the County of Aberdeen.

THE LATE MR. GREIG SMITH.—A bronze bust of the late Mr. Greig Smith was unveiled in the Bristol Civic Museum on May 5th by the high sheriff (Mr. Richardson Cross, F.R.C.S. Eng.), who in a sympathetic speech alluded to the various services of the late distinguished surgeon. About £500 had been subscribed towards erecting a memorial to Mr. Greig Smith, £220 of which had been expended upon the bust, pedestal, and medallion and the remaining £280 had been handed to the Bristol Royal Infirmary towards the expenses of the new operating theatre.

UNIVERSITY OF CAMBRIDGE.—A Frank Smart Studentship in Botany, of the annual value of £100, will be vacant at Caius College in June. Candidates must have passed in honours the Natural Sciences Tripos, Part I., and after their B.A. degree undertake to pursue botanical research. Applications are to be addressed to the Master of the College.—Opportunities for research in zoology at Naples and Plymouth are offered at the university tables in these stations. Students who desire to be nominated should apply to Professor Newton, F.R.S., by June 1st.—Professor Kanthack will during the long vacation hold a number of classes in Pathology and Bacteriology; and Dr. Hill with Dr. Barclay-Smith in Practical Histology.

PRIZE ESSAY ON TUBERCULOUS CYSTITIS.—The Royal Academy of Medicine and Surgery, Barcelona, will award the "Dr. Gari Prize" next year for a paper on "A Clinical Study of Tuberculous Cystitis; its Clinical Tableau and Treatment." Three thousand francs will be given for the best essay and one thousand for the second best. The essays may be in Spanish, French or Italian, and must be sent to the Academy, Baños Nuevos, No. 9, Barcelona, before Sept. 30th, 1899. No essay may be in the author's handwriting or contain his name, but each must bear a motto and must be accompanied by a sealed envelope bearing the same motto and enclosing the name and address of the author. No prize will be awarded unless in the opinion of the judges sufficient merit is shown.

THE RE-NOTIFICATION OF INFECTIOUS DISEASES.—At Stonehouse (Gloucestershire) Police-court on April 28th Dr. E. A. Howsin of Stroud was summoned for failing to comply with the requirements of the Infectious Diseases Notification Act. Evidence showed that Dr. Howsin was called to Stonehouse to attend some boys suffering from scarlet fever and that he sent the usual notification to the medical officer of health for the Stroud rural district. Subsequently the cases were removed to Haresfield, which place is in another council's district, and Dr. Howsin omitted to re-notify. He explained that his breach of the law was through ignorance and that as soon as he became aware that re-notification was necessary he complied. The magistrates accepted this explanation and only fined the defendant 2*s.* 6*d.*, including costs. The landlady who received the cases into her house was also summoned for not notifying the same. The magistrates held that as she let lodgings she ought to be acquainted with the law and fined her 10*s.*, including costs.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Midwives Registration Bill.

THE Committee stage of the Irish Local Government Bill engaged the attention of the House of Commons on Wednesday, May 11th, to the exclusion of the Midwives Registration Bill. At the sittings on Monday and Tuesday Mr. Schwann presented a number of petitions in favour of the Bill, including petitions from the Obstetrical Society of London, the Midwives' Institute, and one "emanating," as Mr. Schwann said, "from a number of the leading members of the medical profession."

The Vaccination Bill.

At the same sitting as that on which the second reading of the Vaccination Bill was passed a number of Members handed in amendments in view of the committee stage. Mr. Channing proposes that an order directing a child to be vaccinated shall not be made on any person who makes a statutory declaration that he has a conscientious objection to the vaccination of his child and further that no vaccination officer shall initiate a prosecution under the Vaccination Acts if the board of guardians of the union shall have declined to authorise prosecution under the Acts. Mr. Labouchere's amendments are of a very sweeping character and practically involve repeal of all our vaccination laws. Mr. Hazell proposes that no order for the vaccination of a child "shall be made in any Poor-law union area wherever the guardians have, since the passing of this Act, passed a resolution by a majority of two thirds of those present and voting to the effect that they are opposed to compulsory vaccination until such resolution shall have been rescinded by a similar resolution passed by a bare majority."

Corporal Punishment in Prisons.

The Bill of the Home Office for the reform of prison administration in England is in process of consideration by the Grand Committee of the House of Commons on Law. Several debates have taken place on the subject of corporal punishment and the outcome of them is that the Home Secretary has undertaken to draft a clause making this form of punishment permissible only in cases of mutiny and incitement to mutiny and of grave personal violence. Against the declared opinion of the Home Secretary the committee passed an amendment requiring that one of the Prison Commissioners shall be an expert in mental disease.

HOUSE OF LORDS.

THURSDAY, MAY 5TH.

Amendment of the Lunacy Laws.

The Lord Chancellor at this sitting of the House of Lords moved the second reading of the measure of the Government for the amendment of the Lunacy Laws. His Lordship explained that the Bill was substantially the Bill of last year and while wishing to meet every reasonable suggestion the Government proposed that the Bill should be passed into law before the end of the session. The main occasion for the introduction of the Bill was, he said, a feeling that the power to make urgency orders for the detention of persons supposed to be of unsound mind ought to be safeguarded. While this object was of great importance it was equally important to avoid doing anything which would interfere with the promptest treatment of proper cases. The urgency order was first devised to provide for cases where homicidal or suicidal mania occurred and where the delay occasioned by the ordinary procedure of applying to some judicial tribunal might be dangerous to the public and the patient. Although this modification of the law probably had not led to any real mischief in the way of persons not insane being shut up in asylums, yet in a large proportion of cases merely to save trouble urgency orders had been obtained when there was not the least pretence that there was any urgency at all. In one case an urgency order was made because the lady to whom it referred had peculiar views about the necessity of the marriage tie. In another case a lady was arrested under an urgency order while she was actually engaged in litigation and instructing her counsel. It was obvious that these orders were never intended for such cases and their employment in them constituted a gross abuse. It was impossible to avoid the use of these orders in the cases for which they were properly intended, but the Bill provided that any person who certified for one should be made responsible for any misstatement and should be compelled to give his reasons on the face of the certificate for the necessity of the order. Under these circumstances it would be difficult for the certifying person to avoid responsibility. The rest of the Bill dealt with points of detail which were entirely for committee, but, from the communications which had reached him, it was clear that discussion would be necessary. The question was where the line was to be drawn between local freedom of action and central control. The provision and administration of asylums were thought to be best undertaken by each county for itself; but a Central Lunacy Commission had been appointed to secure uniformity of principle in the treatment of lunatics. The best course was to trust to ability, discretion, and mutual confidence between the authorities concerned, to work out a system of this kind. But, unfortunately, cases had arisen occasionally showing that the intentions of the Acts relating to lunacy administration were not everywhere realised. There were two points illustrating this raised by Clauses 13 and 20. Under the existing law the plans for asylums had to be approved by the Secretary of State; but the Secretary of State had no power to intervene where the buildings, after completion, were used in a different way from that to which consent had been given. Cases had arisen where this had been done to an extent nullifying the Secretary of State's control. Clause 13 would make that control effective by requiring the arrangements of the asylum to remain in accordance with the approval given. He should hope to hear this clause more freely debated in Committee from a practical point of view and he should be glad to accept any amendments which would obviate ground for apprehending undue interference with local administration. The question of pensions for asylum officers was dealt with in Clause 20. When Parliament gave power to the counties to charge their funds with the expense of a pension system for asylum officers it never occurred to anyone that the power would not be universally and liberally used; but it had not, although it had been generally and satisfactorily acted upon. There was no class of public servants (as asylum officers were entitled to be

called) who deserved more consideration in this respect, both in their own interest and in that of the unfortunate persons of whom they had charge. To the principle of this clause he attached great importance, but he hoped that in Committee amendments would be moved to give the best possible shape to the proposal.—After a short debate the Bill was read a second time.

HOUSE OF COMMONS.

THURSDAY, MAY 5TH.

Enteric Fever among the Troops in India.

General Russell asked the Secretary of State for India whether the Government of India had arrived at any conclusion regarding the cause of the great increase in enteric fever among European troops in India; whether the investigations which it was promised should be made were concluded; and whether it was proposed to adopt any special measures to arrest the spread of this malady.—Lord George Hamilton replied: No definite conclusion has been arrived at as to the cause of the increase in enteric fever among British troops in India, and the investigations on this subject are still proceeding, selected medical officers having been specially detailed for this duty. Generally the measures taken to check the spread of the disease are the improvement of the water-supply, the provision of pure milk and butter, and improved sanitation of camp cantonments and barracks. One cantonment, Dragshais, where there have been serious outbreaks of enteric fever, has been completely evacuated for a year pending the installation of an improved water-supply and the disinfection of the barracks and their vicinity.

Vaccination Prosecutions.

Mr. Logan asked the President of the Local Government Board if it would be possible for a parent to be prosecuted three times on account of each unvaccinated child between the ages of twelve months and fourteen years, should the Vaccination Bill now before the House become law—viz., first, under Section 29 of 30 and 31 Vict. c. 84; secondly, by means of an application for a magisterial order under Section 31 of the same Act; and, thirdly, for disobedience of that order; and whether he had considered that the fines and costs in those three prosecutions might amount to the sum of £4 6*s.* 6*d.*—Mr. Chaplin replied: If the Vaccination Bill becomes law a parent could only be proceeded against twice for penalties in respect of the same child, once under Section 29 of the Act of 1867 and once under Section 31 of that Act; but before proceedings could be taken for a penalty under Section 31, a justice must, after summoning the parent to appear, direct the child to be vaccinated within a certain time. The maximum penalty in each of the two proceedings would be 2*s.*, but a parent might be required to pay costs and the amount of such costs, I believe, varies in different districts.

First Aid in London.

Mr. Hubbard asked the Home Secretary whether any first aid was rendered to the wounded on the occasion of the disastrous collapse of a building in Orchard-street, Westminster, on the 21st ult. when a number of persons were injured, seven being killed, and whether any steps could be taken by the Government to develop an efficient ambulance service in London.—Sir M. White Ridley replied that the men injured by this accident were removed immediately to Westminster Hospital, only 350 yards distant. This was considered a better course than attempting to render first aid in the presence of a great and excited crowd. The five most seriously injured were, he was told, under treatment at the hospital within four minutes of the occurrence of the accident. Eight ambulances from different police stations and one horse ambulance arrived promptly on the scene, and of the 100 constables present 70 were competent to render first aid. He had every reason to think that the police ambulance arrangements were thoroughly efficient.

Royal Commission on the Disposal and Treatment of Sewage.

Mr. Chaplin made the following announcement on this subject—viz.: The Commissioners appointed are the Earl of Iddesleigh (chairman), Sir Richard Thorne Thorne, K.C.B., Professor Michael Foster, Professor William Ramsay, Major-General Constantine Phipps Carey, Dr. James Burn Russell, Colonel Thomas Walter Harding, Mr. Thomas William Killick, and Mr. Charles Philip Cotton. The Commissioners are appointed to inquire and report: first, what method or methods of treating and disposing of sewage (including any liquid from any factory or manufacturing process) may properly be adopted, consistently with due regard for the requirements of the existing law, for the protection of public health and for the economical and efficient discharge of the duties of local authorities; and if more than one method may be so adopted, by what rules, in relation to the nature or volume of sewage or the population to be served or other varying circumstances or requirements, should the particular method of treatment and disposal to be adopted be determined; and, secondly, to make any recommendations which may be deemed desirable with reference to the treatment and disposal of sewage.

The Plague in India.

Lord George Hamilton answering a question on this subject said: I have ascertained from the Viceroy that assurance has been given by the Bengal Government that wholesale quarantine against plague will not be enforced, but that arrangements will be made for inspecting travellers from infected localities, for segregating persons suspected of plague and for treating plague-stricken travellers. Members of families will not be separated when sent to segregation camps and the purdah system will be respected. Private plague hospitals and segregation camps are permitted. Inoculation is not enforced on any one, but arrangements are made for inoculating under Professor Haffkine's system persons who desire to be thus protected and special concessions have been made to encourage this form of inoculation.

FRIDAY, MAY 6TH.

Glycerinated Lymph.

Dr. Clark asked the President of the Local Government Board (1) whether his attention had been called to the report on sanitary measures in India for 1894-5 as to the use of lymph preserved with glycerine, in which it was stated that in the Madras Presidency preserved lymph was largely used, no fewer than 642,296 persons being vaccinated with lymph preserved with glycerine; that it was therefore no matter of surprise that of these only 89·2 per cent. proved successful cases of vaccination; and that the use of vaccine lymph mixed with glycerine was evidently not only an expensive procedure but disappointing in its results; (2) whether after a fair trial glycerinated lymph had been entirely discontinued in the Calcutta and Darjeeling depôts, the principal reason assigned by the sanitary commissioner of Bengal being that glycerine was a nutritive medium for the growth of putrefactive and other germs; (3) whether Sir George Buchanan also held a similar view regarding lymph preserved in glycerine; and (4) whether anything had been done to carry out the suggestion of the Royal Commission that there should be further investigation of this matter, and if so with what results.—Mr. Chaplin: In reply to the last paragraph of the question I stated in detail in the House nearly two months ago the steps which had been taken to carry out the recommendations of the Royal Commission with regard to the further investigation of this matter and also the results. Those results were eminently satisfactory and there is really nothing, I think, which I could add to what I said then. A report on the preparation and storage of glycerinated calf lymph with a full account of that investigation has also been laid upon the table. With regard to the memorandum referred to in the first paragraph of the question (relating to India in 1894-95) it does not appear how far the statements are based on reports which are described as being in many cases absolutely untrustworthy or under what conditions of laboratory precautions or otherwise the vaccine lymph at that date was mixed with glycerine. I do not understand whether the 89·2 per cent. successes referred to were insertion successes but even if they were they are in striking contrast with the successes reaching 97, 98, and 99 per cent. recorded in the report I have already referred to when the material was prepared under conditions of laboratory precautions such as are now being adopted. I am not aware that the use of glycerinated calf lymph has been discontinued on the ground stated in the districts in India which are mentioned and I am advised that it is not the fact that Sir George Buchanan held the view suggested in the question.

MONDAY, MAY 9TH.

Imported Milk.

Mr. Heywood Johnstone asked the President of the Local Government Board if his attention had been called to the recent report of Mr. Consul Gurney on the trade and agriculture of Cherbourg and district and, particularly to the paragraphs which refer to the large and increasing export of fresh milk to this country and to the statement that such milk was prepared for export by the admixture of some unknown antiseptic and that a certificate from a medical authority to the effect that the antiseptic was in itself innocuous would certainly be welcome and reassuring; and if he would take steps to obtain such a certificate and also a guarantee (as suggested by Mr. Consul Gurney) that no milk imported into this country has ever come from dairies where any of the inmates of the farm were suffering from infectious disease, and generally to insure that imported fresh milk was subject to the same sanitary safeguards and restrictions as milk produced in this country.—Mr. Chaplin replied: I am aware of the report referred to and the statements it contains. I entirely agree with my hon. friend in what I understand to be the object of his question, viz., that every precaution should be taken that milk imported into this country should be innocuous to public health. I have already taken steps for the chemical and bacteriological analysis of the milk imported from abroad, but with regard to the other guarantees that my hon. friend desires—viz., that the milk imported from France has not come from dairies where any of the inmates of the farm are suffering from infectious disease and is subject to the same sanitary safeguard and restrictions as milk produced in this country—that is a matter which at present is beyond my control. My hon. friend, however, is mistaken as to the large and increasing character of the trade from Cherbourg. The figures for the present year are as follows: January, 20,500 gallons; February, 28,500 gallons; March, 14,000 gallons; and April, 528 gallons.

Venereal Diseases in the Straits Settlements.

Mr. Duncombe asked the Secretary of State for the Colonies whether he had received a statement from the Straits Settlements Association showing that in the five years ending 1896 the ratio of venereal disease among the troops in the Tanglin district of Singapore was 434·17 per 1000, as against 144·81 per 1000 in the five years ending 1888, before the repeal of the contagious diseases ordinance, and containing statements by Brigade-Surgeon-Lieutenant-Colonel H. H. Stokes that of the sickness in his command 50 per cent. was of venereal origin, and by Captain Bruce of H.M.S. *Orion*, which left Singapore in 1890, that more than half of the ship's company had been in hospital with venereal disease during the year; and what measures he proposed to take to prevent the continuance of a system under which such widespread disease involving such serious impairment of our military strength in the Straits Settlements was rendered possible.—Mr. Chamberlain said he had received this statement calling attention to a most serious state of affairs. As he had already informed the House he was in communication with the Governor of the Straits Settlements on the subject and the correspondence when completed would be laid upon the table.

The Vaccination Bill.

The debate on the second reading of the Vaccination Bill was resumed at this sitting and concluded and the measure was referred for further consideration to the Grand Committee on Law. Speeches were delivered by Mr. Hazell, Sir Charles Dalrymple, Mr. Channing, Mr. Labouchere, Mr. Ascroft, Dr. Farquharson, Dr. Clark, Mr. T. P. O'Connor, Mr. T. W. Russell, Mr. Whittaker, and others.—Dr. Farquharson suggested that the Government might have taken a somewhat stronger line, but at the same time he was prepared to support the Bill as a step in the right direction. The second reading of the Bill was carried by 237 to 23 votes.

TUESDAY, MAY 10TH.

Medals for Ambulance Work.

Mr. Cornwallis asked the Home Secretary whether he had come to a decision to recommend, in accordance with the terms of his speech at Blackpool, the bestowal of the Jubilee medal on those members of the Volunteer Medical Staff Corps (Maidstone Company) who were in previous possession of the certificate of the St. John Ambulance

Association and who did duty in London (treating 153 cases of injured people) on the occasion of the celebration of the sixtieth year of Her Majesty's reign.—Sir M. White Ridley replied: I find on inquiry that the case of these men is the same as that of the members of the Ambulance Brigade who have already received the medal, and am happy to be able to inform my hon. friend that I have given directions for the medal to be issued to them.

Smoke Nuisance at Westminster.

Mr. Labouchere asked the First Commissioner of Works whether he had noticed that a high chimney in close vicinity to the Palace of Westminster emits at all hours of the day clouds of black smoke and whether he would call the attention of the local authorities to this nuisance with a view to its discontinuance.—Mr. Akers Douglas replied that he had noticed the black smoke from this chimney and from many others elsewhere of late but the nuisance was probably due to the impracticability of getting Welsh steam coal during the strike. In any case, however, he had no authority in the matter and any representation on the subject should be addressed to the County Council.

Phosphorus Poisoning.

Mr. Pickersgill asked the Home Secretary whether, in accordance with his promise given on the 2nd inst., he had made further inquiry into the case of Cornelius Lean, lately employed at the match factory of Messrs. Bryant and May, who was poisoned by the yellow phosphorus used in the manufacture; whether he proposed to direct that proceedings should be taken against the occupier of the factory and the factory doctor respectively for neglecting to give the notices required by section 23 of the Factory Act, 1895; and whether it was intended to prosecute the factory doctor, under the Registration of Births and Deaths Act, upon a charge of wilfully misstating the cause of death upon the medical certificate.—Sir M. White Ridley said in reply: Yes; I have made further inquiries and a report of the result has been received this morning in the Home Office which requires very serious consideration. I have not yet had time to examine the report, but by Thursday I shall be in a position to say what steps I propose to take.

Midwives Registration Bill.

Mr. Hazell asked the First Lord of the Treasury whether he was aware that a large number of deaths of mothers and infants were annually proved at inquests to be the result of the employment of ignorant and untrained midwives and that this was the only civilised country in which such entirely untrained and unqualified action was permitted, and whether, under these circumstances, he would give facilities for the discussion on an early day of the Midwives Registration Bill now awaiting its second reading.—Mr. Balfour replied that it was impossible to make an exception of this or any other private Members' Bill.

Appointments.

Successful Applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.

BELL, K. DE RISLEY, M.R.C.S., L.R.C.P., has been appointed House Surgeon to King's College Hospital.

BENSON, P. L., M.D. Irel., D.P.H. Camb., has been re-appointed Medical Officer of Health by the Buckingham Rural District Council.

BOULTON, ARTHUR, M.R.C.S., L.R.C.P., D.P.H. Lond, has been appointed Medical Officer of Health by the Woodhall Spa Urban District Council.

BOWIE, J. C., M.B., C.M. Aberd., has been appointed Medical Officer of Public Health for the District including the Parishes of Sandsting Aithsting, Walls and Foula, and Sandness and Papa Stour in the County of Shetland.

BRISCOE, J. C., M.R.C.S., L.R.C.P., has been appointed Assistant House Physician to King's College Hospital.

CHENERY, A., M.R.C.S., L.R.C.P., has been appointed House Surgeon to King's College Hospital.

DAVIES, A. O., L.R.C.P., L.R.C.S. Edin., M.R.C.S., has been re-appointed Medical Officer by the Machynlleth Urban Council.

DURRAN, D., M.B., C.M. Glasg., has been appointed Medical Officer of Health for the Burgh of Thurso, vice J. G. Smith, deceased. Also Medical Officer for the Combination Poorhouse, Halkirk, vice J. G. Smith, deceased.

FITZGERALD, JOHN J., M.D. Brux., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., L.A.H. Dub., has been appointed Fourth Assistant Medical Officer for the Cork District Lunatic Asylum.

FLUX, GEORGE, M.D. Brux., M.R.C.S., L.R.C.P., L.S.A., has been appointed Assistant Anæsthetist to the Dental Hospital of London.

GANGE, F. A., M.D. St. And., M.R.C.S., has been re-appointed Medical Officer of Health by the Faversham Rural District Council.

GARDNER, THOS. HUDSON, M.R.C.S., L.R.C.P., has been appointed House Physician to King's College Hospital.

HASSLACHER, F. J., M.R.C.S., L.R.C.P., has been appointed House Accoucheur to King's College Hospital.

HAWKESWORTH, THOS. A., M.R.C.S., L.R.C.P., has been appointed House Surgeon to King's College Hospital.

HERBERT, B. H., M.R.C.S., has been re-appointed Medical Officer of Health by the Uttoxeter Urban District Council.

HUNTER, DAVID, M.A., M.B., B.C. Cantab., L.S.A. Lond., has been appointed Assistant Medical Officer for the City Asylum, Newcastle-on-Tyne.

JAMES, PHILIP, F.R.C.S. Eng., has been appointed Surgeon to the Wellington Hospital, New Zealand.

JARVIS, W. C., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the St. George's No. 2 Sanitary District of the Parish of St. Giles, Camberwell.

JEFFARES, J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Kegworth Sanitary District of the Shardlow Union.

LEWIS, C. T., M.R.C.S., L.R.C.P., has been appointed Assistant House Accoucheur to King's College Hospital.

MARSH, J. H., L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer of Health by the Little Hulton Urban District Council.

MARTINEAU, A. J., L.R.C.P. Lond., M.R.C.S., has been appointed a House Surgeon for the Nottingham General Hospital, vice W. R. Smith, resigned.

MORRISON, A. T., M.B., B.Ch. Irel., has been re-appointed Medical Officer of Health by the Aylesbury Rural District Council.

PATTERSON, G. H., L.R.C.P. Lond., M.R.C.S. Eng., L.S.A. Lond., D.P.H Lond., has been appointed Medical Officer of Health for the Ulverston Union Combined Districts.

NELL, R. F., M.R.C.S., has been re-appointed Medical Officer of Health by the Penarth Urban District Council.

RANSOME, A. S., M.B., B.C., D.P.H. Camb., has been appointed Medical Officer of Health by the Southgate Urban District Council.

SIBBALD, I. G., M.B., C.M. Edin., has been appointed a House Surgeon for the Stirling Infirmary, vice W. A. Taylor, resigned.

STEPHENSON, WM., M.R.C.S., has been re-appointed Medical Officer of Health by the Beverley Rural District Council.

STRATTON, C. R., L.R.C.P., F.R.C.S. Edin., has been re-appointed Medical Officer of Health by the Wilton Urban District Council.

SUTTON, FREDERIC REGINALD, M.B., B.S. Durh., has been appointed a Resident Surgeon to the Birmingham General Dispensary.

WALLIS, P. E., L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health by the East Grinstead Urban Council.

WESTBROOK, E., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Schools and Almshouses of the City of London Corporation at Brixton.

WILKIN, R. H., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Fifth Sanitary District of the Thingoe Union.

WILLIAMS, C. R., M.B., C.M. Edin., has been re-appointed Medical Officer of Health by the Ashby-de-la-Zouch Urban District Council.

WILLIAMS, HOWELL, M.D. St. And., L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health by the Richmond (Yorks) Rural District Council.

WILLIAMSON, A. M., M.B., C.M. Edin., B.Sc., has been appointed Chief Sanitary Inspector for Edinburgh.

WOOD, M. A., Jun., F.R.C.S., L.R.C.P. Lond., has been re-appointed Medical Officer of Health by the Ledbury District Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRISTOL EYE HOSPITAL.—House Surgeon. Salary £60, with board and lodging.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £130 per annum, with prospect of increase, and rooms in the infirmary free, also coals and gas.

CARDIFF INFIRMARY.—Assistant House Surgeon and Assistant House Physician, for six months. Board, washing and apartments provided.

CHESTER GENERAL INFIRMARY.—Assistant House Surgeon for six months. Salary at the rate of £40 per annum, with residence and maintenance in the house.

COUNTY ASYLUM, Whittingham, Lancashire.—Junior Assistant Medical officer, unmarried. Salary commencing at £100 per annum, rising to £250, together with furnished apartments, board, attendance, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY, Dumfries.—House Surgeon. Salary £50 per annum, with board and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL, Thoro'fare, Ipswich.—Senior House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

EGYPTIAN GOVERNMENT.—The School of Medicine and the Kasr-el-Ainy Hospital, Cairo. Medical Officers. Applications to the Director-General, Sanitary Department of the Egyptian Government, care of the Secretary, The Examination Hall, Victoria Embankment, London.

FULHAM UNION.—Assistant Medical Superintendent for the Union Infirmary, unmarried. Salary £120 per annum, increasing £10 yearly to a maximum of £150, with board, furnished apartments, attendance, and washing, and subject to statutory deduction. Applications to the Clerk of the Guardians, Union Offices, Fulham-palace-road, Hammersmith, W.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Physician or Surgeon for the Skin Department of the Hospital.

HANTS COUNTY ASYLUM, Fareham.—Third Assistant Medical Officer, unmarried. Salary £100 per annum, increasing to £125 after twelve months' service, with furnished apartments, board, washing, and attendance.

HOSPITAL AND DISPENSARY, Newark-upon-Trent.—House Surgeon, unmarried. Salary £80 per annum, with board and lodging in the hospital.

HOSPITAL FOR DISEASES OF THE THROAT, Golden-square, London.—Honorary Physicians and Honorary Surgeons.

HOSPITAL FOR WOMEN, Soho-square, London.—Registrar for twelve months. Honorarium 25 guineas.

JOINT COUNTIES ASYLUM, Carmarthen.—Second Assistant Medical Officer, unmarried. Salary £100, increasing, if suitable, to £120, by increments of £10 at the end of the first and £10 at the end of the second year, with board, lodging, washing, and attendance.

LONDON COUNTY ASYLUM, Claybury, Woodford-bridge, Essex.—Junior Assistant Medical Officer (male). Salary £150 per annum, with board, furnished apartments, and washing. Applications to the Clerk of the Asylums Committee, Office, 21, Whitehall-place, S.W.

LONDON LOCK HOSPITAL, Harrow-road, W.—House Surgeon to the Female Hospital. Salary £50 per annum, with board, lodging, and washing.

LONDON THROAT HOSPITAL, Great Portland-street, W.—House Surgeon (non-resident) for six months. Salary £25.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, London.—Two fully qualified Medical Women as Assistant Anæsthetists for one year.

NORTHERN EMPLOYERS' MUTUAL INDEMNITY COMPANY, 18, King-street, Wigan.—Medical Officers for the Company in Lancashire and Cheshire.

PARISH OF BIRMINGHAM.—Resident Assistant Medical Officer for the Workhouse Infirmary, for twelve months. Salary £100 per annum, with furnished apartments, rations (which do not include alcoholic liquors), coals, gas, laundry, and attendance. Applications to the Clerk to the Guardians, Parish Offices, Edmund-street.

PRESCOT UNION.—Resident Medical Officer for the Workhouse and Infirmary at Whiston, unmarried. Salary £80 per annum, rising to £100 by annual increments of £10, with furnished apartments and residential allowances, subject to statutory deduction. Applications to the Union Clerk, Union Offices, Whiston, Prescot.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Professors and Lecturers.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, Strand, W.C.—House Surgeon. Also Clinical Assistants, for six months.

SCHOOL BOARD FOR LONDON.—Qualified Medical Practitioners to give Fortnightly Lectures on First Aid and Home Nursing. The fee will be 3 guineas for a course of six lectures. Applications to the Clerk of the Evening Continuation Schools Sub-Committee, School Board for London, Victoria Embankment, W.C.

SEAMEN'S HOSPITAL SOCIETY (Dreadnought), Greenwich, S.E.—House Physician. Salary £75 per annum, with board and residence. Applications to the Secretary, Greenwich.

ST. PANCRAS AND NORTHERN DISPENSARY, 126, Euston road, London.—Resident Medical Officer, unmarried. Salary £105, with residence and attendance. Applications to the Hon. Sec., 23, Gordon-street, Gordon-square, W.C.

ST. PETER'S HOSPITAL, Henrietta-street, Covent-garden, London.—House Surgeon for six months. Salary at the rate of £100 a year, with board, lodging, and washing.

UNITED LAW CLERKS' SOCIETY, London.—Medical Officer. Applications to the Secretary, 3, Old Serjeants' Inn, Chancery-lane, W.C.

UNIVERSITY COLLEGE, Sheffield.—Lecturer in Physiology.

WEST HERTS INFIRMARY, Hemel Hempstead, Herts.—House Surgeon and Dispenser for two years. Salary £100 per annum, with furnished rooms, board, fire, lights, attendance, and washing.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Second Assistant Medical Officer. Salary £180, with board, &c., rising £10 annually to £230.

Births, Marriages, and Deaths.

BIRTHS.

CROOK.—On May 4th, at Dalby-square, Cliftonville, Margate, the wife of Herbert Evelyn Crook, M.D., B.S. Lond., F.R.C.S., of a son.

CROPPER.—On May 5th, at Mount Ballan, Chepstow, the wife of John Cropper, M.A., M.B., B.C. Cantab., of a son.

CUTTING.—On May 1st, at Chetwynd House, Stalham, the wife of Ernest B. Cutting, M.R.C.S., L.R.C.P., of a son.

DOUGLAS.—On April 4th, at Sanchez, Santo Domingo, the wife of Robert Douglas, M.B., C.M., of a son.

RODMAN.—On May 5th, at Heathcote, East Sheen, S.W., the wife of George Hook Rodman, M.D., of a son.

SANDALL.—On May 2nd, at Park-lane, Alford, Lincolnshire, the wife of T. Edward Sandall, B.A., M.B., B.C. Cantab., of a daughter.

SCOTT.—On May 7th, at Shooters-hill-road, Blackheath, the wife of Patrick Cumin Scott, M.B. Cantab., of a son.

SQUARE.—On May 9th, at Portland-square, Plymouth, the wife of J. Elliot Square, F.R.C.S., of a daughter.

USHER.—On May 1st, at Laurel Lodge, Dundrum, Co. Dublin, the wife of Isaac William Usher, L.R.C.S.I., of a daughter.

WINGRAVE.—On May 7th, at Allington House, St. Peter's-park, St. Albans, the wife of Wyatt Wingrave, M.R.C.S., of Devonshire-street, Portland-place, W., of twins (daughters).

MARRIAGES.

JOHNS—DICKINSON.—On April 26th, at Misson, by the Rev. F. W. Keene, assisted by the Rev. H. McNaught, John Francis Johns, M.D., of 3, Lansdown-place, Cheltenham, to Lucie, third daughter of the late John Dickinson, Misson, Bawtry.

NORTON—NUNN.—On May 5th, at St. Mary's Church, Greenhithe, John Norton, M.D., D.P.H., of Queen Anne's-mansions, to Mabel, daughter of the late G. R. Nunn, of Lyndhurst, Hants.

RUDDUCK—TAYLOR.—On May 10th at St. Peter's, Bayswater, by Rev. E. W. Moore, assisted by the vicar of the parish, John Burton Rudduck, L.R.C.P., M.R.C.S., late of Assam, to Maude Mary Perston Taylor, late of Bethlehem and Morocco, eldest daughter of Robert Taylor, Solicitor, of 7, Bedford-row, W.C.

DEATHS.

KER.—On May 7th, at Hadley House, Cheltenham, Claudius Buchanan Ker, M.D. Edin., aged 77 years.

KINGLAKE.—On May 7th, at Wilton House, Taunton, Hamilton Kinglake, M.D.

MACKINTOSH.—On May 7th, at Chesterfield, Angus Mackintosh, M.D., Medical Officer of Health, Chesterfield Rural and Whittington, Dronfield and Clay-lane Urban Districts, aged 64 years.

PARTRIDGE.—On May 7th, at his residence, Thicket Lodge, Anerley, Deputy Surgeon-General Samuel Bowen Partridge, C.I.E., Q.H.S., Bengal Medical Service (retired), aged 69 years.

WALL.—On April 29th, after a long and painful illness, Alfred John Wall, M.D. Lond., F.R.C.S., Indian Medical Service (retired list), aged 50 years.

WILLIAMS.—On May 2nd, Arthur John Williams, M.R.C.S. Eng., L.S.A., of Upper Caterham, in his 39th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Westminster (2 P.M.).

TUESDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.).

WEDNESDAY (18th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.).

THURSDAY (19th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.).

FRIDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

SATURDAY (21st).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (16th).—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Annual Conversazione. Reception by the President. 8.45 P.M. Dr. F. Roberts: The Moscow Congress—a Holiday—with Comments on Suggested Topics.

SOCIETY OF ARTS.—8 P.M. Prof. C. Wilson: Electric Traction. (Cantor Lectures.)

TUESDAY (17th).—PATHOLOGICAL SOCIETY OF LONDON.—8.30 P.M. Annual General Meeting for the Election of Officers for the ensuing Session. Reports of the Morbid Growths Committee upon Specimens referred to it during the last six months. Dr. C. P. White and Dr. T. A. Bowes: Intestinal Obstruction due to Inflammation of the Great Omentum.—Dr. C. P. White: Sarcoma of the Kidney.—Mr. S. G. Shattock: Glanders Bacillus.—Dr. H. M. Fletcher: A Tumour of the Spinal Cord.—Dr. P. Weber: Microscopic Specimens illustrating an Apparent Thickening of the Subcutaneous Veins. Card Specimens:—Mr. H. J. Curtis: A large Lipoma of the Perineum.—Mr. S. G. Shattock: Experimental Infections in Animals.—Dr. C. P. White: Ununited Fracture of the Scapula.

WEDNESDAY (18th).—ROYAL MICROSCOPICAL SOCIETY (20, Hanover-square, W.).—7.30 P.M. Exhibition of Microscopic Aquatic Life.

SOCIETY OF ARTS.—8 P.M. Mr. J. K. Starley: The Evolution of the Cycle.

FRIDAY (20th).—EPIDEMIOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (16th).—LONDON POST-GRADUATE COURSE.—London Throat Hospital, Gt. Portland-st., W., 8 P.M., Dr. G. Stoker: Chronic Glandular Disease of the Nose and Naso-pharynx.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M. Mr. W. Wingrave: The Pathology and Histology of Lupus and Tubercle of the Upper Air Passages.

TUESDAY (17th).—LONDON POST-GRADUATE COURSE.—Hospital for Skin Diseases, Blackfriars, 4.30 P.M., Dr. Abraham: Leprosy.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3.30 P.M. Sir W. R. Gowers: Lecture.

CITY ORTHOPÆDIC HOSPITAL.—5.30 P.M. Mr. J. J. Clarke: The Pathology and Treatment of Flat-Foot.

WEDNESDAY (18th).—LONDON POST-GRADUATE COURSE.—Parkes Museum, Margaret-st., W., 4.30 P.M., Prof. A. Wynter Blyth: House Drainage.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. Whitfield: Anæmia and Allied Conditions.

MASON UNIVERSITY COLLEGE (Birmingham).—4 P.M. Mr. J. W. Taylor: Extra-uterine Pregnancy. (Ingleby Lecture.)

NORTH-WEST LONDON CLINICAL SOCIETY (North-West London Hospital).—8.30 P.M. Demonstration of Clinical Cases.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Fowler: Clinical Varieties of Pulmonary Tuberculosis.

THURSDAY (19th).—LONDON POST-GRADUATE COURSE.—Central London Sick Asylum, Cleveland-st., W., 5.30 P.M., Mr. Jonathan Hutchinson: Clinical Lecture.

CHARING-CROSS HOSPITAL.—4 P.M. Dr. Galloway: Demonstration of Skin Cases. (Post-graduate Class.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Batten: Cerebral Palsies in Children.

LONDON TEMPERANCE HOSPITAL.—2 P.M. Dr. S. Fenwick: Clinical and Lantern Demonstration to Senior Students—Lung Disease.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL (Gray's Inn-road, W.C.)—4 P.M. Dr. D. Grant: Chronic Catarrh of the Middle Ear.

FRIDAY (20th).—LONDON POST-GRADUATE COURSE.—King's College 5 to 6 P.M., Dr. Wilkinson: Anthrax and Malignant Œdema.

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND, WHEN ACCOMPANIED BY BLOCKS, IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICE TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
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Subscriptions (which may commence at any time) are payable in advance.

THE DIFFERENCE BETWEEN "SKIMMED" AND "SEPARATED" MILK.

IN an appeal heard recently the decision of a magistrate that separated milk could not be regarded as skimmed milk was, we are glad to say, upheld. The vendor had supplied a tin of condensed milk upon the label on which were the words: "This tin contains skimmed milk with nothing added but the finest sugar." As a matter of fact the tin contained separated milk—that is, milk from which 97 per cent. of the original fat had been removed by a separator. Milk, on the other hand, when skimmed seldom yields more than 63 per cent. by the process. The decision was obviously logical and correct.

CLERICAL QUACKERY.

WE have frequently to point out in these columns that parochial clergy throw their ægis over quackery and even practise it themselves, regardless of the gravity of the possible consequences. A medical man sends us the following note which has been received by him and the original of which was, he says, in the handwriting of the clergyman of the parish, although it was signed by the patient's wife:—

C——.

DEAR SIR,—My husband is distracted with pain. Can you send anything to relieve him, or do you think it would be well to inject some morphia? If so, what quantity would you sanction? I understand Mr. R—— K—— could inject it if he had your sanction.

Yours respectfully,
J. H——.

P.S.—Please write a note.

Our correspondent informs us that Mr. K—— has on a previous occasion tried to introduce the services of a "cancer-curer" in this neighbourhood, so that it would seem that the reverend gentleman is rather bitten with the idea that he has a knowledge of medicine. We strongly advise him to leave off dabbling in what does not concern him before his willingness to administer deadly poisons to other laymen gets him into trouble. We do not say that his motives are other than kind, but his actions are very other than wise.

"SENSE OF FEELING IN A LOST LIMB."

THE following letter is taken from the *Literary Digest* published in New York:—

"The article, 'Sense of Feeling in a Lost Limb,' published in your issue of March 19th, interests me very much, and, thinking that a brief statement in regard to the same from a personal standpoint might interest your readers, I make it.

"My left leg was amputated at the middle third of the thigh over thirty-four years ago. The sensation of knee, foot, heel, hollow of foot, and toes being present is stronger than in the other limb. In fact, when at rest one is not conscious of any sensation in his limbs in a state of health; but in the stump the sensation is ever there, sometimes painfully so. This is no hallucination, but is due to anatomical and physiological reasons.

"Nerves of sensation pass out from the spinal column to every part of the surface of the body, each nerve having its own particular part to supply and each conveying to the nerve-centre knowledge that its terminal point is being irritated. Thus, a nerve terminating in the end of the big toe, no matter where it is irritated between the nerve-centre and the end of the toe, will say to the nerve-centre, 'The end of the big toe is touched or hurt.' When a leg is amputated all these nerves are gathered together and covered in by a healing of the stump, and it sometimes happens that they are firmly bound down by the cicatrix, and as it hardens, pressing upon them, sensations of pain occur, *not* at the end of the stump, but *at the point where each nerve terminated*. Just before storms, when the barometric pressure is light, the air within the tissues expands and presses on these nerve-ends, causing intense pain sometimes, and there is no relief but to reamputate the limb and see that the nerves are not caught in the cicatrix. It is generally the stump that perishe away and becomes small that gives the most annoyance.

My leg was amputated in such a position that when I stand it seems to be flexed with the foot behind me, and I have often tried to remove it from the way of persons passing, and have even tried to put it out to prevent the slamming of a door behind me, and much to my surprise the door did not stop. I have had many a fall in trying to walk, when springing up quickly I tried to put my foot to the floor. I have seen comrades whose legs were amputated below the knee, when on crutches, try to put the foot down and so come heavily on the end of the stump.

"As I grow older there is a sense of shortening in the leg, the foot seeming to come nearer the body. If I move the muscles of the stump, as in the effort to extend the knee, a sensation of great heat occurs at once in the stump, when it may be almost frozen with cold. Dry heat sometimes relieves pain in these stumps, but nothing will relieve permanently except an operation, as above stated. "H. A. DOBSON, M.D.

"Washington, D.C."

"SPIDERS, NOT COBWEBS."

AT a meeting of the Vestry of St. George-the-Martyr, Southwark, held on May 3rd, the medical officer of health, Dr. F. J. Waldo, reported as a result of an inspection made by him on the complaint of the new rector, the Rev. W. J. Somerville, that he was of opinion that "the close proximity of human remains (scattered in the form of bones and between 1000 and 2000 leaden coffins) in the crypt beneath the parish church of St. George's, where living beings are in the habit of congregating, is likely at any time to prove a danger to health." Dr. Waldo added that he had found extensive cracks in the ordinary brickwork of the walls and arches of the unventilated crypt, in which the air was musty, oppressive, and probably septic, and that Mr. Somerville's official request to inspect was the first and only one he had ever received. After a lengthened and heated debate (lasting upwards of two hours) the vestry resolved "to refer the matter back to the public health committee, with power to act and to take what steps they may deem necessary." Mr. Hilton, an old churchwarden and former chairman of the public health committee, urged as a proof

of the badness of the air and the need therefore of speed in action the fact that for some years past no spiders could be found in the belfry of the church tower. The atmosphere was so foul that they could not manage to live there. Mr. Redman, a prominent member of the health committee and a guardian, however, said that he had that day, in company with the two churchwardens, on inspecting the crypt been surprised by a living black cat which had jumped out of one of the gaping coffins. He had also found abundant evidence of cobwebs. Mr. Hilton retorted that he had said spiders, not cobwebs.

"GOUNA."

To the Editors of THE LANCET.

SIRS,—Gouna, as far as I know, is a drug little used in this country. It was brought to my notice some time ago by a gentleman on his return from the Cape of Good Hope and I have found it simply invaluable in obstinate ulcerations of mucous membrane on which the ordinary antiseptics, astringents, and other remedies had produced little or no effect.

Gouna is the Hottentot name for a species of mesembryanthemum and is said to be a domestic remedy used by the natives of the South African seaboard for a variety of ailments both internally and as a lotion or gargle. Internally it is used in the sore mouth of children during teething, in diphtheria, in chronic diarrhœa, scurvy, &c. Externally as a gargle in sore throat, white mouth, bleeding gums, and ulceration of the tongue and lips. I should be glad to hear the experience of others who may have used the drug in this country regarding its action and uses in their hands. I should add that I have satisfied myself that gouna is not a proprietary medicine.

I am, Sirs, yours faithfully,

JAMES ADAM, M.D. St. And.

West Malling, Kent, March 28th, 1898.

P.S.—Since writing the foregoing I have received the following further particulars from the Cape: "The 'gouna' is a very good remedy. The plant is the Mesembryanthemum edule (Linn). The prescription I make up is as follows: The expressed sap of the gouna leaves is evaporated to half the quantity; leave standing for ten days, boil again, and dissolve into it potass. chlor., add sp. vini rect. and filter. ℞ Succ. mesembryanthemi, ℥v.; potass. chlor., ʒiss.; sp. vini rect., ℥i.; M."

THE LATE MR. ARTHUR JEFFARES BARLOW: AN APPEAL.

AN earnest appeal is made by the following medical men to fellow practitioners and others on behalf of the young widow of Mr. Arthur Jeffares Barlow, who died suddenly on March 11th last at the early age of thirty-seven years. He was the eldest and only surviving son of the late Frederick Archer Barlow of 14, North Great George-street, Dublin, and will be remembered by many old friends and fellow students at Trinity College, Dublin. Unfortunately his position through ill health prevented his making any provision for his widow, who is without any means whatever and has no friends to assist her. She is in delicate health caused by long strain of nursing her husband and the shock of his sudden death. It is hoped that a generous response will be made to the appeal and that substantial aid may be given to such a sad and deserving case. Subscriptions will be received by Dr. J. W. Moore, 40, Fitzwilliam-square West, Dublin; Dr. John Barton, 26, Upper Merrion-street, Dublin; Dr. C. J. Clibborn, 76, Owen-terrace, University-street, Belfast; Dr. L. H. Ormsby, 92, Merrion-square West, Dublin; Dr. Henry, 2, Lewisham-park, Lewisham, London; Dr. A. Matson, 619, Holloway-road, London. The following subscriptions have been received or promised:

	£	s.	d.		£	s.	d.
A Friend	5	0	0	Dr. J. W. Moore	1	1	0
Dr. John Barton	2	2	0	Sir W. H. Porter, Bart. ...	1	1	0
Dr. A. W. Baker	2	2	0	Dr. Clibborn	1	1	0
Mr. H. R. Swanzy	2	2	0	Dr. A. Matson	1	1	0
Dr. J. Little	2	2	0	Dr. Henry	1	1	0

JOHN PAGE HENTSCH APPEAL.

To the Editors of THE LANCET.

SIRS,—The following further contributions have been received:—Mr. Sers, £1 1s.; Mr. J. W. Coles, 10s. 6d.; Mr. A. S. R. Wainwright, £10.

I am, Sirs, yours faithfully,

410, Brixton-road, S W. G. DAVID KNIGHT.

Tibia.—The number of books on anatomy, physiology, medicine, and surgery is endless and there is not much difference between them. We offer our correspondent the following suggestions as to books for the Naval Medical Service examination:—Physiology: Foster's "Text-book," in four parts, or Waller's "Introduction to Human Physiology." Anatomy: Gray or Morris, and for surgical applied anatomy the excellent little book by Treves. Medicine: Fagge's "Text-book." Clifford Allbutt's "System" will be found very useful to consult upon particular subjects. Surgery: The "Systems" of Erichsen or Treves. Materia Medica: Lauder Brunton, "Text-book"; Mitchell Bruce, "Hand-book." French: This cannot be learned from a book. The best way to learn it is by the Gouin System and by reading French books of good literary style. Chemistry: Lewes, "Service Chemistry." Our correspondent is advised to refer to THE LANCET for Sept. 5th, 1896, where he will find fuller information than we have space for here.

Electro.—We have received no previous communication. There are certain conditions in which the process is useful, so that to practise it cannot be considered derogatory. We know of no pamphlet on the subject, but it is dealt with in all treatises on the use of electricity in medicine. A paper on the Electrolytic Administration of Drugs was read before the Harveian Society some years ago by the late Dr. Cagney and will be found in THE LANCET of Dec. 21st, 1889, p. 1285. For further references our correspondent is advised to consult Neale's "Digest."

Verax.—1. The Council have a perfect legal right to do as they have done, though it appears to us that their action is unnecessary. 2. We cannot express any opinion upon the views of the councillor mentioned without knowing the motives which impelled him to vote as he did. 3. Has the newly appointed medical attendant accepted the appointment?

Mr. Thomas Pyke.—We strongly protest against the introduction of alum into food, especially in a way unsuspected by the consumer. The new Food and Drugs Act adequately provides against the use of alum in baking powders but there is little prospect of the measure becoming law for some time yet.

Subscriber asks if any reader of THE LANCET can give him suggestions for a mechanical appliance "to prevent nocturnal masturbation," or can tell him of any preventive measures recommended in medical literature. The patient is mentally afflicted.

Mr. R. Martin.—The "worms" consist of little threads of dental pulp. Possibly the cleansing of the tooth and the removal of pulp by the process give relief. The idea of "worms" being ejected is mythical.

Cuba.—If our correspondent wants this information for medical purposes his medical adviser is the person to supply it. If he wants it for other purposes we are not the persons to supply it.

R. G.—It is not proposed to offer another Carmichael Prize. The present scheme has been found unworkable and application is being made to have it altered.

Mr. James Parker.—If the half of what you tell us were true you would be unable to write to us. You are recommended to consult your medical man.

Dr. Alfred Cox.—We shall notice our correspondent's communication next week.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 12th, 1898.

Date	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
May 6	29·86	N.W.	...	112	63	48	50	54	Hazy
,, 7	30·34	N.E.	0·03	108	65	44	47	52	Fine
,, 8	30·32	S.W.	0·03	68	57	50	49	51	Raining
,, 9	30·03	N.W.	0·05	94	65	50	52	57	Cloudy
,, 10	29·87	S.W.	0·08	79	63	51	51	52	Cloudy
,, 11	29·26	N.W.	...	111	60	51	48	54	Cloudy
,, 12	29·19	N.	...	68	52	47	48	50	Cloudy

During the week marked copies of the following newspapers have been received: *Carlisle Express, Louth Times, Newark Herald, Lancaster Standard, Times of India, Pioneer Mail, Warwick Times, New Ross Reporter, Citizen, Architect, East Essex Advertiser, Northampton Mercury, Dundee Advertiser, Builder, Newcastle Chronicle, Galloway Gazette, Cambridge Independent Press, South Wales Daily News, Eastern Daily Press, Herald of Wales, Maidstone Journal, Bristol Mercury, Liverpool Daily Post, Western Mail, Scotsman, Sheffield Weekly Telegraph, Manchester Courier, Nottingham Express, Leeds Mercury, Grantham Times, Leicester Post, Sussex Daily News, Glasgow Herald, Leinster Express, Surrey Times, Caithness Courier, West Middlesex Herald, St. Mary's Hospital Gazette, Local Government Chronicle, Nottingham Daily Guardian, Reading Mercury, City Press, Mining Journal, Hertfordshire Mercury, Coventry Herald, Guy's Hospital Gazette, Bristol Times and Mirror, Surrey Advertiser, Local Government Journal, Weekly Free Press and Aberdeen Herald, Hong Kong Weekly Press, Tamworth Mercury, Bromsgrove Weekly Messenger, West Yorkshire Pioneer, Bradford Observer, Birmingham Gazette, Yorkshire Post, Kentish Observer, West Middlesex Herald, Newry Reporter, Ramsey Courier, Wells Journal, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Dr. B. Anningson, Cambridge; Messrs. Arnold and Sons, Lond.; Dr. R. H. Ashwin, York; Mons. J. Astier, Paris: A. B., Lond.; Dr. C. Andrews, Lond.; Dr. R. Y. Aitken, Blackburn; Messrs. Armour and Co., Lond.

B.—Mr. J. Brown, Glasgow; Mr. L. A. Bidwell, Lond.; *Birmingham Daily Gazette*; Messrs. Burroughs, Wellcome, and Co., Lond.; Mr. E. M. Bowden, Lond.; Mr. A. A. Bradburn, Devonport; Dr. C. Bolton, Lond.; Mr. F. L. Benham, Lond.; Mrs. Blackmore, Wandsworth; Messrs. Brown, Gould, and Co., Lond.; Bristol Eye Hospital, Secretary of; Bolingbroke Hospital, Lond., Committee of.

C.—Dr. J. H. Clarborne, Petersburgh, U.S.A.; Mrs. Victoria Clarke, Peterborough; Central London Throat and Ear Hospital, Secretary of; Mr. T. Cooke, Lond; Mr. A. Cox, Lond.; Dr. P. M. Chapman, Hereford; Mr. W. N. Clemmey, Bootle; Cardiff Infirmary, Secretary of; Cortland Wagon Co., Lond.; Mr. P. Carmody, Lond.; Messrs. Cassell and Co., Lond.; Dr. T. K. Clarke, Huddersfield; Mr. J. Clegg, Rochdale; Dr. C. Clapham, Rotherham.

D.—Mr. F. Davidson, Lond.; Dr. C. V. Dingle, Middlesbrough; Messrs. Downie, Aiton, and Aiton, Glasgow; Dumfries and Galloway Royal Infirmary, Treasurer of; Dunelm, Lond.; Dorset Soda Water Co., Weymouth; Mr. J. Dell, Great Berkhampstead; Mr. N. C. Dobson, Bristol; Dr. G. H. R. Dabbs, Lond.

E.—Mr. T. S. Ellis, Gloucester; Esmond Cycle Saddle Co., Lond.; East Suffolk Hospital, Ipswich, Secretary of.

F.—Mr. H. Frode, Lond.; Dr. J. Ferguson, Paisley; Messrs. Ferris and Co., Bristol; Fides, Lond.; Mr. E. P. Field, Lond.

G.—Dr. Gould, Philadelphia; Dr. Gubb, Lond.; Dr. J. R. Garland, Manchester; Gem, Lond.; Mr. C. A. Gillig, Lond.; Great Eastern Railway Co., Lond., Continental Traffic Manager of; Messrs. Gale and Co., Lond.; G. P., Lond.

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